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The Technology Review

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GREETING FROM THE PRESIDENT-ELECT

TO THE ALUMNI OF THE INSTITUTE:—

Gentlemen,—I have been so much touched by the cordial greetings that you have sent to me from various parts of the Union, that I take the first opportunity of assuring you collectively that I prize your good-will very highly, and shall strive to retain it. I know enough of the history of the Institute to realize, in a measure, how much it owes to the support of its alumni and I am pleased with the prospect that there will be no diminution of that support in the future.

I come to the Institute because of my profound conviction of the importance of sound technological training and of the splendid field for service that is thus opened to me. It has so often been my lot to urge the claims of technological education before an apathetic audience that it is a peculiar pleasure to address a body of men that needs no urging in the matter. You have all realized that, in the field of industry, rule-of-thumb has been unhorsed and science placed firmly in the saddle. You know, too, that, in the fierce struggle of today between individuals and nations, that man and that race is doomed that lacks the accurate knowledge which science fosters and the power which such knowledge gives to a mind that is alert.

Knowledge and power have doubtless been watchwords at the Institute throughout its history. I trust that they will ever remain so, and that whoever presides over its destinies will see that no effort is spared to make it respected as a place of sound learning and accurate knowledge, and that this knowledge is imparted under such conditions as

will develop and not cramp the natural powers of the students.

The Institute has unfolded wonderfully in the past, and I know that you will watch with interest its future growth. I shall do my best to maintain its great traditions and shall enter upon the task strong in the assurance of your loyalty and co-operation. It has much in its favour,—a great reputation for thoroughness and efficiency, a distinguished and energetic faculty, a loyal and enthusiastic body of alumni devoted to its interests and ready to make great sacrifices to further its advancement. You know, however, better than I, that it also labours under certain disadvantages. These we must do our best to remove as speedily as possible, and the problem to which we must devote our energy most strenuously in the immediate future is to obtain a site and buildings that will free the institution from its cramped posture and enable it to develop naturally. I need scarcely assure you that I have far more concern for its inner worth than for its outer show. I do not advocate show, but I believe that such an institution should have a dignified site and buildings and that its inner worth will suffer very seriously if it has not.

The Institute is already a great one, known and respected throughout the world by all that have any interest in technology. We need have no fear for its future greatness; for, whatever be the new conditions under which it works, I feel sure that it will retain something of the old spirit, that spirit of thoroughness, breadth, high-mindedness, and loyalty that makes the brand of a Tech man.

Yours sincerely,

RICHARD C. MACLAURIN.

OUR NEW PRESIDENT

A Man eminently fitted by Experience and Personal Qualities
to direct the Affairs of the Institute

On the 11th of November the Corporation elected Richard C. Maclaurin, M.A., LL.D., Sc.D., to the presidency of the Massachusetts Institute of Technology.

The news that the important question of an executive head for the Institute had been settled was received with rejoicing by the alumni, Faculty, and friends of the school; for it seemed to insure the immediate consideration of those questions which must play such a vital part in the future development of our institution and the retention of its leadership in technological education. With a broad and comprehensive plan that includes the removal to a site not too remote from the present home, where more ample provision can be made for the social and physical well-being of the students, and where the facilities will be more adequate to meet successfully new problems as they arise, no one need fear for the future. This is especially true since the execution of this plan is to be intrusted to a man in the prime of life, who believes in "preserving the traditions of the past and striving along the same general lines for the same great ends," whose enthusiasm and optimism do not allow him to believe that the alumni of the Institute and the people of Massachusetts will permit this school's brilliant achievements to fade through lack of financial support, and whose motto is "a bold policy, a courageous policy of trust in the future."

While we welcome the new leader, we wish, at the same time, to pay tribute to our Acting President, Dr. Noyes, who has guided our Alma Mater with such wisdom and foresight during the last two years. A leader in the field of physical chemistry, he left the quiet of his laboratory for the atmosphere of administration, with its less congenial social and public activities, at the call of the Cor-

poration, and his unselfish devotion and able administration have won for him the regard and gratitude of all. Unwilling himself to assume the duties of executive office permanently, he has been active in the selection of the new President. It is a source of gratification to all alumni that the Institute will continue to enjoy the benefit of his experience and ripe scholarship.

The Institute has been fortunate in the men who have shaped her policies and administered her affairs in the past, and it is the sincere belief of those who know Dr. Maclaurin that he will prove a worthy successor to the distinguished leaders who have preceded him. A brilliant scholar in two quite distinct branches of learning, mathematical physics and the law, an administrator of experience, a man of broad culture and varied interests extending far beyond the domains of his profession, withal a man of simple and democratic tastes, he brings to the office of President unusual qualifications. The fact that Dr. Maclaurin was born in Scotland, educated in New Zealand and England, and was from 1898 until February last a professor in the University at Wellington, New Zealand, may lead some to assume that he is unfamiliar with our American political and educational institutions. The truth is that Dr. Maclaurin is astonishingly well acquainted with our own universities. He spent nearly a year in the United States and Canada in 1895, in a careful study of our educational methods, and by the time he is inducted into office in Boston he will have held for a year and a half the position of professor of mathematical physics at Columbia University, New York city, in succession to Dr. Woodward, now president of the Carnegie Institution, and, as secretary of the department of physics at Columbia, will have enjoyed unusually close association with that great university.

Besides this knowledge of our own methods, Dr. Maclaurin will bring to the Institute familiarity with the best practice of other lands. Called to New Zealand as professor of mathematics in the University at Wellington in 1898, he was soon afterwards chosen chairman of the Faculty, an administrative position somewhat analogous to that of president in an American college, and later on was made dean of the Law School. While chairman of the Faculty

he travelled extensively through the British Empire, France, and Germany, studying the educational systems of those countries, in order to give to the development of higher education in New Zealand and Australia the best that the older civilizations could offer. It was natural for him to give particular attention to the subject of technological education in the countries visited, because, as a mathematician and physicist, he realized the important part that technological education was to play in the industrial and economic development of Australasia.

It will be of interest to those familiar with the traditions of the Institute to know that Dr. Maclaurin is in sympathy with an important principle which has always prevailed with us,—that of granting to the Faculty a large measure of influence in shaping the educational policies of the school. He has recently expressed himself on the subject somewhat as follows: "The Faculty, if properly chosen, must always contain a large number of men whose opinions as to the educational policy of the Institute are most weighty. Many such matters they must understand far more thoroughly than either the President or the Corporation, and it would be the height of folly for the latter not to recognize this and act upon it. I believe that the Faculty ought to be given to understand that it is in a large measure responsible for the educational policy of the Institute. In these days there are so many forces at work tending to draw men away from teaching, especially in the field of technology, that no opportunity must be neglected of adding to the attractiveness and dignity of the profession. One means to that end is to let the Faculty realize that it may play a leading part in shaping the destinies of the Institute."

Dr. Maclaurin is also in hearty sympathy with the Institute's insistence upon an intermingling of the humanistic with the scientific and technical subjects. He is entirely opposed to the overcrowding of the curriculum with a mass of technical subjects that would better be acquired in the school of practice and experience. The sacrifice in the undergraduate courses of the fundamental scientific structure of engineering for the teaching of engineering practice does not meet with his approval. He believes in a training

that will stimulate the mental and human faculties in a way to develop the power to meet and solve the new problems as they arise in the world of affairs.

In regard to athletics, Dr. Maclaurin takes the sane and moderate view held by most men trained in England. He believes in the importance of a sufficient amount of physical exercise to keep the body in the condition necessary for the most efficient service, and he may be relied upon to foster the rational system of athletics that has been developed within recent years at the Institute.

Dr. Maclaurin has a personality that draws men to him. His simple and unassuming manner carries with it an assurance of sincerity, and his keen sense of humor and the richness and variety of his experience and information lend an unusual charm to his conversation. He makes friends quickly; and, as the acquaintance advances, the largeness of the man becomes more apparent. This power to attract men to him insures cordial and sympathetic relations between the President and the student body, and will in time, without doubt, win for him the affectionate regard of the alumni.

Dr. Maclaurin has been twice honored by the University of Cambridge, England. In 1904 he received the degree of Doctor of Laws in recognition of his achievements in the law and the importance of his legal work on the "Title to Realty." Last summer he received the much-coveted degree of Doctor of Science for his attainments in mathematics and physics. In this connection the following appreciation from J. Larmor, Sc.D., F.R.S., secretary of the Royal Society, an authority pre-eminent in the domain of mathematical physics, may be of interest. Dr. Larmor says, "I am able without hesitation to express my judgment that R. C. Maclaurin is a skilful and profound mathematician, quite of the first rank."

In February, 1908, Dr. Maclaurin published the first volume of a treatise on "Physical Optics." Of this volume the *Philosophical Magazine* says: "There have been so many advanced treatises on Physical Optics in the last few years that it might be thought to be superfluous to produce another. The present volume is, however, of so singular and at the same time of so im-

portant a character that no excuse is necessary for its birth. . . . The distinctive feature is that a large part of the volume embodies in a modified form the substance of a series of papers of the author published within recent years by the Royal Society. In its thoroughness of treatment of the more recondite cases of interference there is no treatise in the field to compare with it. . . . We recommend this book to every serious student of Physical Optics."

From all the evidence at hand, then, it would seem that the Corporation has been very fortunate in securing the services of so eminent and well-trained a man as Dr. Maclaurin, and we have every reason to anticipate a wise and able administration. In this connection, however, the alumni should bear in mind that no man, be he ever so sagacious and devoted, can be expected to solve single-handed the problems that now confront the Institute. It is earnestly to be hoped, therefore, that the friends of the Institute will show their confidence in the new President, not only by the cordial and enthusiastic welcome they accord him, but also by a hearty co-operation with him in all his endeavors, and especially by a substantial and generous support of his financial policy.

GEORGE V. WENDELL, '92.

A Directory of Non-Graduates

The Alumni Association is now securing information in regard to the former students of the Institute preparatory to the publication of a register of former students, not graduates, which shall be as complete as it is possible to make it. It would be very desirable to have this register include the names of all former students, both graduates and non-graduates, for the influence of the non-graduates has been so strong and so helpful that the degree carries practically no distinction for purposes of the Alumni Association. Your co-operation is earnestly desired in order that the list may be complete. The book will be published as soon as the matter can be properly collected and compiled.

TEN YEARS OF THE REVIEW

A Summary of Notable Technology Advances since 1898

A college with a reputation to sustain is supposed to be the embodiment of conservatism and to progress only as the family "carryall" does in contrast with a sixty-horse-power car. Yet to read, even runningly, the ten stout volumes of the REVIEW sets one's head whirling with the rapid passing of the educational panorama. To look back one year is to gain an impression that Institute growth is as slow as geological accretion: to look back ten years is to wonder how such earthquakes and volcanoes of change could have happened without our paying heed.

It is true that old Rogers Building still stands majestic, the serene centre of Institute life; that the Walker Building remains its ugly self; that the Garrison street shops and the Gymnasium continue inaccessible; and that Engineering A and Engineering B patiently await christening by some million-dollar donor. But, in addition, there have arisen, during these ten years, the Pierce Building, the Augustus Lowell Laboratories, Engineering C, and the Tech Union, doubling the floor space of the Institute, yet leaving teachers and students still in cruel straits for room.

The decade of the REVIEW's life has not only seen Technology continuing to outgrow its buildings, it has witnessed a revolution in opinion regarding the meeting of that ceaseless need for space. In 1899 the mere rumor that the Institute might move was indignantly denied or was dismissed as an academic question with which this generation need not deal: today the question of the Institute's site is the most pregnant and imperative of immediate problems. From a general belief that the school would best remain where it is to a wide-spread demand that it should take the radical step of removal to a new and ample situation, where its buildings may be planned upon a scale of dignity worthy of the leading school of

architecture in America, and where it may have room to work out the newest problems of real education, is a long journey to take in one decade.

It is, however, along the intangible paths of ideals, of teaching atmosphere, of undergraduate and graduate spirit, and of effective loyalty, that the Institute has made its greatest advances during the first ten years of the REVIEW. In mere numbers progress has been phenomenal, for more than half of the whole body of alumni have attained that enviable state since 1898; but the main significance lies in the fact that the training of these four thousand young men before leaving the Institute, and their conception of their relations to the school after they go out, is vastly different from what it used to be. Ten years ago what was the Alumni Association? A very loose aggregation of widely scattered persons, a small number of whom paid their dues and a still smaller proportion of whom came together annually to dine and to give rather chilly greeting to the graduating class. There were a few branch associations in strategic centres like Chicago and New York; but not many of their members regarded his organization as responsible for the furthering of Tech.

Today, however, what do we mean when we speak of the alumni of the Institute? We mean a body of 4,129 active members, an equally loyal body of 350 elected associate members, and a third body of 4,166 potential associate members, many of whom already are and most of whom would gladly be active workers for the Institute. We mean, moreover, not simply a perfunctory organization with some local branches: we mean a vitally knit family of men, loving and believing in Technology and what it stands for, a family that has established centres of Technology life in twenty-five sections of the country as well as in Boston itself, that is maintaining a busy alumni office for the conducting of large Institute enterprises, that has taken upon itself the supervision of and a large responsibility for the athletic and social side of undergraduate experience, that has subscribed a hundred thousand dollars for a Walker Memorial which shall be the controlling centre of this student life, that has given an additional unfettered quarter of

a million towards the immediate support of the school, and that, through the nomination of fifteen of its members to the Corporation, has shown its willingness and its capacity to assume a major share in carrying the heavy burdens of administration. To signalize this new spirit, the body of past students held, in 1904, a Reunion which, in its extent, its genuine fervor, its demonstration that the man who goes to college primarily to work can have as fine and abiding a college spirit as he who goes there mainly to enjoy an "athletic club for gentlemen," astonished Boston and amazed itself.

This new spirit of the alumni, originally kindled at Tech, naturally finds itself again reflected in the Institute. The most marked change, of course, is in those future alumni, the undergraduates. To one whose acquaintance with Institute life stopped ten years ago, it seems almost incredible that the present student may enjoy, if he choose to enter it, an all-round, rational social life so essential to youthful development. Such a life used to be thought impossible without cultural leisure, academic groves, and dormitories, and to be believed incompatible with a spirit of hard work. Since 1898, however, there has grown up, naturally, healthily, and without damage to Institute standards, a college atmosphere at Technology which, blossoming partially at the temporary Tech Union on Garrison street, promises to reach full and satisfactory fruition in the new Tech Union on Trinity Place, a house given to the students by the Technology Fund and by gifts of generous friends. In the management of this Union the undergraduates are being given direct, and, to a large degree, controlling responsibility.

To understand this new undergraduate spirit, one must be in the very midst of it. But significant surface indications are: a rational fraternity life, through which a considerable number of undergraduates find good living, pleasant companionship and an excellent administrative experience, in houses which they occupy in the Institute's vicinity; the increasing patronage of "commons," furnished so excellently by Mrs. King's lunch-room and the old Union, and now expanded into the great dining-room of the new

Tech Union; the establishing of state, city, or preparatory school clubs which dine together at frequent intervals; the creation of numerous professional societies wherein the men, through their own or others' talk upon technical and non-technical problems, enlarge their outlook upon their future professions; the development of "Junior Week" festivities, which, besides the more frivolous things of youth, bring forward *Technique*, acknowledged to be the best of college annuals, and the "Tech Show," written by the men themselves, and reaching a standard of amateur performance which is very high; and the growth of the *The Tech* into a tri-weekly newspaper of true journalistic flavor and influence.

Athletics, however, is one of the surest gauges of undergraduate sanity; and therein these ten years have seen most commendable gains. They have witnessed the abolishing of the "cane rush," so childish and finally so fatal, and the substitution of "Field Day," when sophomore and freshman come together in a true test of prowess through manly sports. They have seen the making of "Technology Field," with its excellent opportunities for track athletics; the joint management of athletics by alumni and undergraduates; the founding of the Cabot Medals for the greatest individual progress in physical condition; the incalculably useful work of a regularly appointed medical adviser; the employment of an instructor in gymnastics, as well as an athletic trainer; and, finally, the establishing of physical training as a required course for all members of the first-year class. All this has been facilitated by the moving and rebuilding of the gymnasium.

To meet this immense growth in student life and organization,—a development now recognized as an essential part of collegiate education,—the administration of the Institute has, during the short life of the REVIEW, been wholly reorganized. In addition to the President, Secretary, and Treasurer,—officers coexistent with the Institute,—there are now a Dean, whose business it is to know and advise the students; a Registrar and a Recorder, whose duties and interests do not stop at the mere receiving and transmitting of records; a Bursar, whose interpretation of fiduciary responsibility includes a high sense of obligation toward the varied

needs of students; and (latest to be created) a Publicity Official, who wisely conceives his first duty to be the bringing of Corporation, Faculty, alumni, and undergraduates into closer knowledge of the Institute and of one another.

The administrative officers, however, are not alone in enlarging the opportunities of the undergraduate and therefore the Institute's whole educational field. The members of the Faculty, always brought, through the Institute's methods of teaching, into unusually close relations with their students, have found new ways of utilizing that greatest force in education, the personal influence of the individual teacher upon the individual student. Notably in the department of English, a well-conceived system of student advisers places practically every young man in the Institute under the sympathetic direction of men specially chosen for their wisdom in such work, who admonish the youth not only as to his English, but as to his whole Institute experience. Moreover, through an admirable spirit of co-operation, the technical writings of students in many of the courses are now examined by the English department and weighed for their literary quality, thus emphasizing the supreme importance of the power of expression. This plan is being extended, wherever practicable, to other departments of instruction. Convocations, too, are held, at intervals, by which the whole Institute is assembled to hear some man of prominence speak upon problems of wide significance and value. A minor activity, but one of deep moment, is the encouraging of the students to sing together. To this end has been published (the second edition through the gift of a recent graduating class) a Technology Song Book, largely compiled by the lamented Bullard, '87, and enshrining his "Stein Song" as his chiefest legacy to Tech. For these enlargements of social opportunity for the undergraduate the Institute is in perpetual debt to the initiative of President Pritchett.

The marked development of Technology since the issuing of the first number of the REVIEW has not been limited, however, to undergraduate activities and relationships. In these ten years not only has the tuition fee been raised, but the requirements for

admission have been very materially advanced; yet the numbers in attendance have increased (with some fluctuations) from an average of about twelve hundred to one of about fifteen hundred. The instructing staff has been enlarged from 164 to 245; two new courses (in Naval Architecture and in Electrochemistry) have been established; most of the elder courses have undergone extensive revision, to meet newer conceptions of education in applied science; the side of research work has been greatly strengthened and extended, with the creation of special research laboratories of physical chemistry, applied chemistry and sanitary science; the proportion of graduates of other colleges in attendance has been increased from 6 to 13 per cent.; and the degree of Doctor of Philosophy has been awarded to six candidates within the past two years. Such large questions as the relations of the Institute to the public, to the secondary schools, to the general problem of engineering education, and to the special problems of English teaching, mathematical teaching, and the development of literary taste, have had profound study, with notable and concrete results; and the furnishing of evening instruction to industrial employees seeking to fit themselves for administrative positions, admirably worked out, with Institute co-operation, in the Lowell Institute School for Industrial Foremen, is in a fair way of being attempted on a more extended scale. Furthermore, the Faculty has evolved a plan—which but awaits more favorable industrial conditions—for conducting, in co-operation with one of the largest industries of Greater Boston, joint theoretical and practical instruction to youth who cannot give all their time to attendance upon one of the regular courses at the Institute.

Of lesser, but nevertheless of vital consequence to the Institute has been the steady development in strength and usefulness, during these ten years, of the Technology Club, which, as a focus for alumni activity and a gathering place for the members of the instructing staff, plays a part no less important than that to be taken, for the undergraduates, by the projected Walker Memorial. The possession of this central meeting-place helped undoubtedly towards the success of the Association of Class Secretaries, which

has been the active supporter, not only of the REVIEW, but of every good effort for the Institute, and which is now to enlarge its field of work in connection with the government of the Alumni Association, thereby greatly strengthening that body's influence. Significant, too, have been the public functions which have taken place at the Institute since 1898,—the inauguration of President Pritchett in 1900, and the celebration of the one hundredth anniversary of the birth of President Rogers in 1904. And of untold value in awakening and bringing together the alumni, the Faculty and the Corporation has been the discussion of the proposed alliance with Harvard University,—a controversy which loomed so large during 1904 and 1905. Whatever one's opinion as to the merits of that dispute, he must acknowledge that nothing else could have so effectively melted old indifferences and stimulated new activities. Largely out of that trial by fire has come the splendid spirit of co-operation which is to be the watchword of the great coming Reunion of 1909, and which will make the history to be recorded in the next ten years of the REVIEW significant and fruitful beyond that of any previous decade.

It would be foolish for the REVIEW to claim any large share of credit for these and for the many other advances which have taken place in Institute life and in Technology efficiency; but it would be unfair to itself and its supporters not to ask due appreciation of the part which it has played. It may do this without arrogance, since its rôle has been a purely passive one. The REVIEW has been a clearing house in which the many views of many minds might be exchanged; it has been a mirror in which Institute tendencies might be reflected, classified, and given direction; it has been a forum which studiously excluded partisanship. Even in the most dramatic period of recent Technology history, that in which fundamental policies were being hotly canvassed, the REVIEW preserved a judicial attitude and presented arguments upon this complex question from every point of view.

It is not to claim too much, however, to assert that the spirit of co-operation which lies at the root of most of what has been done since 1898 could have been fostered only with great difficulty, even

could it have been aroused at all, had there been no REVIEW in which to focus widely scattered sentiment and wherein to make known constructive policies. To serve this necessary purpose was the avowed function of the magazine in the beginning, and remains its main aim today. That it has in some measure succeeded is indicated, its projectors believe, by the hearty and unflagging support of all the great forces that combine to make up this intangible entity, which, infinitely larger than its crowded buildings, infinitely broader than its narrow acreage, dominates so large a field in education and in American life.

JAMES P. MUNROE, '82.

The Best Men Wanted

The increase in honors that are coming to the Institute, and the new vistas that are opening before it, will undoubtedly attract a large entrance class; and, as Dr. Noyes indicates in his annual report to the Corporation, the larger body of applicants must go through some selective process, as our facilities will not allow us to accept all who apply for an education. Several of the classes have discussed this matter, and have started a propaganda to interest in Technology a class of young men who have the best type of manhood and high natural ability. These efforts are to be concentrated on a comparatively few men having the best qualifications, and these classes have appointed committees to make special investigation of the candidates suggested. These names are to be passed to Dean Burton, who will see that proper literature is sent to the young men and that they are fully informed in regard to the Institute.

If any of our readers know of any men fitting for college who are of high character, good natural ability, and well-rounded development,—choice men,—we shall be glad to have the names, and present the advantages of the Institute properly.

A LABORATORY FOR PUBLIC SERVICE

A View of what the Research Laboratory of Applied Chemistry is and may be to the Country

We have, as a nation, acquired the habit of being vastly satisfied with what we have accomplished. We marvel at our enterprise in scraping iron ore from the earth's surface by steam shovels, in growing wheat on virgin soil, in stripping great areas of primeval forest, in burning natural gas and allowing petroleum to spout from the ground. Even Germany acknowledges that she cannot compete with us in raising cotton, and we cut more ice in a month in the single state of Maine than all the Pictet machines in France can turn out in a year. We control the copper market of the world—because we have the copper. If you want cheap sulphur, you must come to us, we pump it from the ground. We develop great centres of power distribution because our rivers run so fast down hill.

To these vast resources we have, indeed, brought a native energy, an unusual capacity for organization, and a genius for mechanical affairs. What we do, we do on a great scale, but we often do it very badly. It is quite time for us to pause in our self-congratulation long enough to inquire whether the things we are doing cannot be better done, whether, in fact, other nations have not developed and put to use much better methods, which, given equal opportunity, would put our own performance to the blush.

Although the resources of a country form the basis of its prosperity, this is, nevertheless, determined in the long run by the manner in which these resources are utilized, or, in other words, by the industrial efficiency of the means and methods of production. We have developed great transportation systems, we handle raw material on a titanic scale, we have applied machinery to the

addressing of our letters and the sticking of the stamps, but it remains true none the less that with a few conspicuous exceptions our manufacturing operations are carried forward in trustful ignorance and disregard of many of the factors upon which real industrial efficiency depends. This is shown in the stupendous waste which accompanies the first crude preparation of the raw material; it is shown in the general absence of a true selective economy in the apportionment of that raw material among the different industries, and it is shown again, and yet again, in the losses which attend nearly every step in the progress of the raw material toward the finished product. One need only refer to the wastes which attend lumbering, or the growing of flax for seed, the making of coke in bee-hive ovens, and the failure to utilize the casein of skim milk as a high-grade food product, to realize vaguely something of what these initial losses are. The absence of proper selective economy in the adaptation of raw material to use is everywhere, as when our railroads use untreated ties and poles, when coal-tar is burned as fuel, crystal alum used for purifying water, or valuable publications printed on ground-wood papers. We are still polluting our streams with wool grease, still wondering whether we can make alcohol from waste molasses, still buying coal without reference to heating power, and paying 65 cents a gallon for cylinder oil.

When wastes so obvious and so easily remedied are everywhere taking heavy toll of our manufacturers, it is not surprising that in all lines of productive effort subtle and elusive problems present themselves and still further lower our industrial efficiency. Steel rails break by thousands, trolley wires snap, boilers corrode, milk-cans rust, unsightly bloom appears on leather, cloth is stained or tendered, paints fail to protect the metal underneath. In a large proportion of cases those who are confronted by the problem have neither the time, the training, nor the equipment required for its solution and yet such problems and thousands of others far more complex upon their face must be solved if our industrial efficiency is to be brought to its proper level.

No one at all conversant with the facts can doubt that our industrial salvation must be found in a closer alliance and co-operation

between the scientific worker and the actual agencies of production. Such co-operation exists, as we are all beginning to learn, in Germany, and its results are evident throughout the world in the tremendous expansion of German industry. In our own country no agency has done more to supply the little leaven which may yet leaven the whole industrial lump than the Massachusetts Institute of Technology, and her graduates, by hundreds, are doing yeoman service in the development of our resources and the application of the scientific method to our practice. So far this is altogether as it should be, but in the present condition of our manufactures it is by no means enough. The time has come to bring the splendid scientific organization and equipment of the Institute to bear directly upon our industrial problems as an aggressive force working for their solution.

Since all material is subject to chemical laws and its properties and behavior influenced or determined by these laws, it follows that a large number, probably by far the greater number, of our industrial problems are problems in applied chemistry. No better field for the initiation of work intended to be directly effective in its bearing upon industrial efficiency could therefore have been chosen by the Institute authorities than that of research in applied chemistry upon some basis which renders the results obtained immediately available to those responsible for the conduct of industrial affairs.

That the Massachusetts Institute of Technology has found it possible to lead her sister institutions in the establishment of the Research Laboratory of Applied Chemistry is due to the generosity of Charles W. Hubbard, Esq., in supplying the funds required for the initial organization and beginning of its work.

The general object of the Laboratory is that of increasing the efficiency of industrial effort by carefully focussed and directed research in chemistry as applied to particular phases and problems of actual practice, but what gives the Laboratory its unique position is the relation in which it aims to stand to industry throughout the country. It will, so far as possible, be made a clearing house for problems in applied chemistry. Many of the expected problems have doubtless been already solved elsewhere, others may at

the time be engaging the attention of outside specialists. In the one case the solution will be immediately forthcoming, in the other the Laboratory will endeavor to bring the applicant into touch with those studying the problem in other laboratories. There will remain, however, many problems of wide importance in their bearing upon industry, and from among these the Laboratory will select for its direct attack as many as its funds permit, giving preference always to those which promise in their solution to prove of greatest benefit to the community. Without attempting to indicate the lines along which this public service of the Laboratory may develop, one may, by way of illustration, point to such subjects for investigation as the cause and prevention of the corrosion of lead pipe, the breakage of steel rails, the waterproofing of cement structures, the utilization of wastes which now involve nuisance, the study of the atmosphere of street-cars and the conditions underlying proper ventilation, the relation of material and treatment to the brittleness of pottery, or the fireproofing of theatre scenery.

Not only will such altruistic service place the profession of chemistry upon a higher plane in the regard of the community by making evident the directness of its concern with the affairs of daily life, but the institution which fosters and inculcates service of this kind will benefit in even greater measure. Splendid as the prestige of the Institute already is and wide as her influence extends, both will gain immeasurably as the college through all its various departments becomes a focus in which is concentrated the attack upon the material problems of the time.

All this, so far as it relates to the Research Laboratory of Applied Chemistry, does not mean that the Laboratory will not welcome problems which have a specific and limited application to particular industries; for it is through problems of this class that the Laboratory will be brought into closest touch with industry and enabled to make its influence most directly and immediately felt by those whom it would benefit. No propaganda preaching the industrial value of research will make converts half so quickly as the actual solution of the particular problems by which the individual manufacturer is confronted and perplexed. For these reasons, no less

than for the more compelling fact that it is to the manufacturers thus aided that the Laboratory at this stage of its development must look for its support, a large proportion of its work will be directed along lines suggested by the manufacturers themselves and leading, if successful, to their individual benefit.

The new Laboratory will constitute a division of the Department of Chemistry and Chemical Engineering, of which Dr. Henry P. Talbot is the head. To his foresight, breadth of view, and strong support must be attributed much of the promise of its scope and plan. The immediate direction of the Laboratory and responsibility for its results will be, however, in the hands of Dr. William H. Walker as Director of the Research Laboratory of Applied Chemistry. The selection of Dr. Walker for this important position is a peculiarly happy one, for he brings to the work a thoroughly well-trained mind, a fine record of attainment, an enthusiasm and energy which his students have found contagious, and a temperamental fitness for research along industrial lines. Dr. Walker is at the beginning of his usefulness. He was graduated in 1890 from Pennsylvania State College, an institution which has turned out many men of more than usual capacity. His collegiate training was supplemented by a university course at Göttingen, which led to his Ph.D. degree. He returned to State College as instructor in chemistry for two years, and came to the Institute as instructor in analytical chemistry in the autumn of 1894. Here his marked success in imparting his own enthusiasm to his students led to his rapid advancement to an assistant professorship; and later, after some years of direct contact with industrial affairs as partner in a large commercial laboratory, he was offered and accepted a full professorship in industrial chemistry. This position he still retains, thus making the experience gained in the Research Laboratory of Applied Chemistry directly effective in the routine instruction of the Institute. Dr. Walker's activities and interests have given him a notably wide general knowledge in the field of chemistry as applied to industry and a direct contact with many special lines of manufacture. His more recent studies and perhaps his most notable achievements have been concerned with the corrosion of metals.

The paper in which his discoveries were announced was awarded the Nichols gold medal.

Dr. Walker has selected as his Research Associates Dr. Warren K. Lewis, M. I. T. '05, who earned his Ph.D. at Breslau, and Dr. William Guertler, a graduate of Göttingen and later *Privatdocent* at the University of Berlin, where he specialized in the chemistry of alloys. Both men bring an exceptional equipment to the work.

In addition to the Research Associates, who form the nucleus of the organization, the Laboratory staff already includes two half-time assistants, who also devote themselves to instruction, and three advanced students working for higher degrees.

The Laboratory is at present located on the fifth floor of the Pierce Building, where quarters barely sufficient for its immediate needs have been secured by rearrangement of the space devoted to other work. No prophetic vision is required to see this space outgrown or to follow the development of the Laboratory to the point where its necessities and the demands of manufactures upon it will require a separate building and elaborate special equipment.

As the Laboratory gains the confidence of manufacturers, their own facilities for experiment upon the large industrial scale will naturally be placed in increasing measure at its disposal. It is not too much to hope that the relations thus established may ultimately lead to the equipment and maintenance of many small special laboratories, all under the direction of the Research Laboratory, but each situated at the point of best study and attack for a particular industry, as at Gary for iron and steel or in the Lehigh Valley for cement. The possibilities for teaching industrial chemistry along altogether new lines and to incomparably better purpose which such a scheme of development holds out deserve the careful study of every friend of industrial education.

The recognition of the importance of the work of the Laboratory and its promise of helpfulness has been so prompt and general that already the need for additional funds has become imperative, if even the immediate opportunities are to be seized. The work now under way, which is of the first importance to several of our great industries, includes the study of case hardening as applied

to special alloy steels, an investigation into the cause of the "gray sheets" which, because of brittleness, are the occasion of heavy loss to makers of galvanized iron, and a study into the causes determining the presence of pinholes in sheet tin plate. The direct bearing of this last-named problem upon the canning industry, the economy of milk transportation, and the permanence of tinned roofs everywhere is obvious. That all will ultimately be solved cannot be doubted in view of the gratifying progress already made.

The terms upon which the services of the Laboratory are offered to manufacturers are these:—

The Laboratory will undertake a specific problem and engage to direct its best efforts towards its solution. The Institute will furnish laboratory facilities and the co-operation of the general instructing staff in a consulting capacity. This phase of the arrangement is of the first importance, since it means that the facilities and organization of the Mechanical and Electrical Laboratories of the Institute as well as those of the Research Laboratory of Physical Chemistry are available for the special assistance they can render in particular aspects of the work.

Reports of progress will be made every three months. The applicant who consigns his problem to the Laboratory undertakes to pay the actual time cost of the one or two experimentalists actually engaged upon the work and the cost of special apparatus, but he is free from all expense involved in the direction of the work or which might otherwise result from the expert consulting service of members of the instructing staff not directly connected with the Laboratory. When results have been obtained, the original applicant has his option of two courses: he may either permit the Institute to publish the entire investigation for the general good of the community or he may elect to keep the results for his own benefit—either as a secret process or by having them patented in his behalf—by paying to the Laboratory for its purposes of further research a sum to be agreed upon at that time.

One has only to consider in the most casual way the opportunity of the Laboratory, to have technical research problems which have their basis in chemistry crowd upon the mind. Our cities are sub-

merged in smoke; our roads are disintegrating under the action of the automobile; we deplore the destruction of our forests, and overlook the sources of paper stock everywhere at hand; we base the future of our agriculture on the diminishing supply of Chile saltpetre, while the nitrogen of the air is pressing with the weight of many thousand tons upon each acre; our peat deposits lie untouched, while we contemplate as best we may the failure of our coal supply; we erect great structures of reinforced concrete, knowing little or nothing of the ultimate mechanism which determines the setting of the cement and still less of the factors upon which the life of the reinforcing steel rods depends. It is with such problems and many others like them that the Research Laboratory of Applied Chemistry has to deal. It will deal with them not only with the prospect of their solution, but upon a basis which holds out the promise of the gradual development of general research methods for attacking the multitude of other problems in applied chemistry wherever they may arise. Best of all, the Laboratory affords an opportunity for the training of men for other laboratories, in which these methods will be applied to the solution of the problems of manufacturers and public service corporations everywhere. Simultaneously with this training of picked men will go forward advanced courses in the application of the chemical method to the needs of industry and seminars on general subjects in chemical technology which will be open to adequately trained students upon election.

No one at all familiar with the conditions under which thousands of American manufacturers are working can fail to realize the unique and fruitful opportunity which spreads out before the Laboratory, nor can they doubt that the funds for its development will be forthcoming. Within the last few years there has opened out to the worker in applied chemistry a new horizon with a sweep so broad that it is seen to include far more than the mere material gains which come from more efficient effort. It has come to be recognized that the lives of great masses of the community are constricted and confined and often mean and sordid, because our industrial efficiency as a people is still far below what it ought to

be. Any general moral or spiritual uplift must find its basis in the increased efficiency of the worker, and in this stage of our industrial development no agency is more directly available for increasing this efficiency than that afforded by chemistry as applied to industry. Every waste that is prevented or turned to profit, every specification which gives a better control of raw material, every problem solved, and every more effective process which is developed makes for better living in the material sense and for cleaner and more wholesome living in the higher sense. It means much to the material and more to the higher well-being of German workmen that their nation now controls the coal-tar industries, the manufacture of fine chemicals, and the markets of the world in many other lines, chiefly as the result of the application of the scientific method to the problems of production. The general application of these methods will mean even more to our own country. This being so obviously true, it is a matter for congratulation to every Institute alumnus that the college which first applied the laboratory method in this country has gone forward until it now offers to all engaged in our industrial development the comprehensive benefits which research in applied chemistry will surely bring.

ARTHUR D. LITTLE, '85.

A Large Edition of the Review

In order that every former student may learn of the great advances that have taken place at the Institute recently, a copy of this number of the REVIEW is being sent to every man of whom we have record. Although it is true that the Institute is handicapped in some directions, it has slowly, but steadily grown in strength, importance, and usefulness, and with the election of a new President it will unfold and develop marvellously. As Mr. Snow shows in his article, about 1,500 of our 9,000 former students have passed the age of forty. Technology is just coming to its own. There is no limit to the possibility of its accomplishments.

WHAT THE INSTITUTE STANDS FOR TODAY *

The Characteristics of its System of Education, its Methods and Ideals

This Institute was started forty-three years ago, largely through the initiative and efforts of one man, William Barton Rogers, for the purposes of establishing a system of education which should fit young men for effective participation in the affairs of life, and of emphasizing the fundamental importance of the study of science, of instruction by the laboratory method, and of direct personal contact between teacher and student, in such a system.

This was at a time, it is to be remembered, when the classical system of education still held undisputed sway; when teaching was done perfunctorily by lectures to large classes or upon the school-boy plan of assigning a lesson to be learned and then holding a recitation upon it; and when, moreover, the ideal of education was to give the culture of the gentleman rather than the ability to *serve* of the man of affairs.

President Rogers' plan marked, therefore, the beginning of a new epoch in education; and the example of this Institute which he founded did much to promote the rapid extension of the methods and ideals for which it stood.

Today there is no longer great need of emphasizing the educational importance of scientific studies nor the educational ideal of fitting for effective service, but there has arisen a variety of new questions, which relate not so much to the kind of studies to be pursued nor to the ultimate purposes of education as to the system and methods by which the now generally recognized purposes can be best attained.

* Extract from a speech made by the Acting President A. A. Noyes, in welcoming President-elect Maclaurin, on behalf of the Institute, at the dinner of the Corporation and Faculty, held at the Technology Union, Dec. 15, 1908.

And in this respect the Institute, partly as the result of the ideals of its founder, but mainly in consequence of a natural development of its methods, has come to represent an educational system which stands in sharp contrast to the university plan which is being followed in many of our eastern universities and which has been most logically and completely developed in the case of our nearest neighbor.

The characteristics of our system are:—

1. Cultural studies are closely correlated and interwoven with the professional work, while under the university plan the two groups of studies are ordinarily pursued successively, in separate undergraduate and graduate schools.

We have not adopted the plan of serving up the different sides of education separately,—*knowledge* in the secondary schools, *culture* in the college, *mental training* in the graduate departments. We hold rather that education is essentially an indivisible whole, that these three sides of it must go hand in hand, and that mental training especially should, in point of time, take precedence over culture, the former being given while the young man's mind and habits of thought are still in the plastic, formative state, and the latter being imparted gradually, but mainly in the later stages of the student's educational career, when it can be done most effectively.

2. The Institute lays, moreover, especial emphasis on work in the exact sciences; for training in scientific method and acquirement of the scientific spirit are considered to be not only essentials to professional success, but important elements in culture and in life.

3. The Institute has developed in an unusual degree conditions of personal contact between instructor and students, through the fact that most of its instruction is given to small sections of students or to individuals in the laboratories and drawing-rooms, or in the conferences recently introduced in first and second year subjects.

4. The courses of the Institute differ from those of many colleges, in that electives are introduced to a much less extent, in the belief that better results are obtained by prescribing, after the student has

selected the profession for which he desires to prepare himself, the principal studies which he is to pursue. He is given, however, the choice between groups of optional studies relating to different branches of his profession and between a variety of electives in the group of general studies. We do not consider it well to give suddenly unlimited freedom in the choice of their studies to boys who have previously been accustomed to a definite curriculum in the secondary schools; for we believe that such freedom commonly results in superficiality rather than in soundness of training, and in narrowness rather than breadth. Freedom of choice should, however, be gradually increased, becoming greater in the higher years of the student's period of study.

5. There have been developed at the Institute sounder conditions of student life, from which has resulted a more duly proportioned division of time and interest between the studies and the social and athletic activities of students than prevails at many colleges. While the Faculty has welcomed the great development of student life which has taken place in the past few years, it demands of its students a standard of scholarship which is inconsistent with an excessive devotion to outside pursuits and with undue subordination of the intellectual to the physical and social interests.

6. Finally, the Institute aims to contribute to the further advance of the various branches of science and engineering included in its curriculum, through the development of courses of advanced study and research, through original investigations carried on in its laboratories, and through the participation of members of its staff as experts in industrial and engineering undertakings.

Applicants for admission to the Freshman class of the Institute must now present satisfactory evidence of preparation in two electives selected from a list of twelve elementary subjects. Heretofore only one elective has been required. The object of this additional elective requirement is to secure greater breadth of preparatory training.

THE SECOND TECHNOLOGY REUNION

Arrangements are now being made for the Celebration next June on a large scale

If the increase in interest and numbers participating in the Third Technology Reunion over the Second Technology Reunion is as great as the second is likely to exceed the first, the Third Technology Reunion will have to be held in some less thickly settled country. Monday, Tuesday and Wednesday, June 7, 8 and 9, are the days set apart to this to-be-memorable convocation. The executive committee of the Alumni Association has appointed an executive committee for the Reunion, which will, in turn, appoint sub-committees to care for the various features of the celebration. The executive committee and the chairmen of the sub-committees will form the committee of arrangements. The executive committee consists of Edwin S. Webster ('88), chairman; Dr. Arthur A. Noyes ('86), Honorable Eben S. Draper ('78), George W. Kirtledge ('77), Theodore W. Robinson ('84), Walter B. Snow ('82), Everett Morss ('85), Henry Howard ('89), and I. W. Litchfield ('85) secretary. The general programme has been discussed tentatively, and the following is an outline of the plans thus far made:—

Technology Union to be used as registration headquarters; Copley Hall to be opened during the three days as a general rendezvous, where there will be a desk and bulletin board for each class, with check-room conveniences, etc.

On Monday afternoon there will be an automobile trip through the suburbs of Boston; in the evening a reception in honor of President Maclaurin, and later on a Jubilee Smoker in a large clubhouse which will be given up to Tech men for that evening. Special acts from the coming Tech Show will be given during the evening, also selections by the glee, banjo and mandolin clubs. There will also be a stereopticon exhibit of interesting scenes and old relics. Will those of our readers who have anything that will be of partic-

ular interest in this connection please communicate with the secretary of the committee?

On Tuesday, the second day, the professors will be in their departments to welcome former students, and at noon special trains will take the delegation to hotels along the North Shore, where a shore dinner will be served to classes. Class business can thus be conducted, and later on there can be a general mingling of Tech men on the seashore. Returning to Boston, there will be a buffet supper at Horticultural Hall, and at half-past eight the classes will form in the hall and march across the street to the "Pop" Concert at Symphony Hall, provided it is found that Symphony Hall is large enough for the purpose. At half-past ten the classes will go to Rogers Building and cheer, the building to be outlined with red fire.

On Wednesday morning, the third day, will occur the excursion down the harbor to the Atlantic House, where we were so handsomely entertained five years ago. The different classes will do their stunts in the arena. This year there will be a grand stand erected on one side of the field, in order to accommodate the larger crowd. In the evening will occur the grand banquet, at which it is estimated there will be more than a thousand men present. The dinner committee is already making elaborate preparations for this dinner.

As the celebration plans contemplate a very full programme, it is suggested that societies and fraternities who wish to hold reunions make arrangements to breakfast together on Monday or Tuesday. Members of former Tech boards and of Osiris are planning to do this. Some of the classes having anniversaries this year will flock by themselves Friday, Saturday, and Sunday, returning to Boston on Monday in time for the automobile trip or the reception.

The full particulars of the Reunion will be given in the April number of the REVIEW, which will be largely devoted to it. Some special committees have already been appointed, and the rest will be at work within a few days. This is a Tech year, and no man who can possibly make arrangements to be here can afford to miss the Second Tech Reunion.

ORGANIZED TO PROMOTE INITIATIVE

The Active Part that the Alumni Association is to play in
the Future

At the beginning of a new administration and almost on the eve of the fiftieth anniversary of the incorporation of the Massachusetts Institute of Technology its Alumni Association comes to its own as a power "to further the well-being of the Institute." Never before has it been so thoroughly equipped for "increasing the interest of the members in the school and in each other." Never has its organization been so well fitted to promote initiative, to provide for deliberation on matters of policy, to concentrate alumni opinion, and to inspire and render substantial support to the Institute.

The Alumni Association is no longer young: it has now attained to physical and mental maturity. Soon the list of former students will cross the ten thousand mark, all eligible as regular or associate members. The average age is rapidly advancing: fully fifteen hundred are over forty, each year nearly half a thousand reach the age of thirty. The Association is now in a position to do a man's work.

The fact that any former student may become an associate member, if found worthy by the executive committee, together with the increased privileges granted to such members in the matter of office holding, should have an immediate and beneficial effect in increasing the total membership of the Association. As thus, in time, it draws to itself practically the entire body of former students, it will grow in power and authority.

Upon the composition of the Council, the central feature of the new form of organization, must depend largely the standing and influence of the Association as a whole. Election to this body should be comparable in honor to election as a candidate for the Corporation. Not only should the membership of the Council be thoroughly representative through diversity in age, profession and

locality, but it should inspire confidence and its opinion should carry weight.

As a deliberative body, the Council may consider in detail and at length matters of mutual interest to the alumni and the Institute. It is the medium through which individual or local alumni opinion can be quickly secured and made effective.

Centralization in the publication of the REVIEW, in the conduct of reunions and "Pop" concerts, in organization and recognition of branch associations, and in the administration of general alumni interests, is but a present and visible advantage of the recent reorganization. But to the future we may look for a far greater influence of the Association upon the Institute. The needs of the latter may be defined and authoritatively presented to the alumni and the public at large. Through its Council the Association may, on occasion, give independent expression to opinions regarding matters of Institute policy. It should grow into closer touch with the Corporation through its increasing representation in that body, and fit itself for recognized co-operation.

In the creation of a new Tech the Association may well prove a mighty power in upholding the hands of the President, the Corporation and the Faculty. Upon its shoulders must rest a goodly share of responsibility for success. It now has the necessary organization and machinery, its chosen representatives must loyally accept the full burden laid upon them, the will and spirit must be there. The next few years are to be years of work,—work of the kind that Tech men have learned how to do and that they may be relied upon to do for the good of their Alma Mater. The Alumni Association must stand in the van.

WALTER B. SNOW, '82.

Three years ago alumni headquarters did not exist: today it is one of the busiest offices in the Institute, employing regularly six clerks and stenographers, and doing an immense amount of varied work for the alumni, undergraduates and the Institute. This is only one small indication of the increase in the activity of the alumni.

PREPARED FOR EFFECTIVE WORK

The Reorganization of the Alumni Association makes it a Power for Good

In the conduct of any association a constitution and set of by-laws are to that association what buildings and machinery are in the conduct of a manufacturing establishment or road-bed and rolling stock to a railroad. They are tools with which the work is done. As time progresses, conditions change, and what were once efficient tools are now out of date and unable to perform economically what they originally did to the best advantage. Old buildings and machinery must give place to new. Old rails and rolling stock wear out or become too small for economical use.

The organization of our Alumni Association has been very rapidly getting out of date in recent years, with the tremendous rate of increase there has been in the number of our alumni. Twenty years ago our alumni, including graduates and non-graduates, numbered about sixteen hundred. Now they amount to nine thousand. Then it was possible to hold a truly representative and deliberative meeting of the whole Association, as it is possible in a small town to hold a truly representative and deliberative town meeting. Recently meetings of the whole Association have become very superficial and very unsatisfactory, because far from representative of the whole Association, and not deliberative at all. It would be almost as difficult to get together all the members of our Alumni Association for deliberative and legislative purposes as to convene all the citizens of Boston for such a purpose. It is very clear, then, that our machinery has been out of date, and, to do the work now before us, that we must have modern tools.

There is another phase of the situation which demands attention. The work to be done by sixteen hundred alumni was far less

in amount and in importance than that to be done by nine thousand,—an amount increasing rapidly year by year. It is not, therefore, a question of doing the same volume and the same kind of work now as that done twenty years ago. The problem is, how to do an increasingly larger, more varied, and more important work for a rapidly increasing constituency.

The work of all associations may be divided into three distinct classes,—legislative, administrative, and judicial. In very small organizations these functions can be assumed directly by the body itself. The larger the organization, however, the more must these matters be delegated. To what extent and how to delegate these functions to best do the Alumni Association's work is what the new constitution and by-laws attempt to define.

In drawing up these regulations, the endeavor has been to clearly differentiate between constitution and by-laws, and it may not be amiss here to present the following definitions of these two words:—

Constitution. A written instrument embodying fundamental laws, or principles of government, and laying down fundamental rules and principles for the conduct of affairs.

By-law. A law that is less important than a general law of constitutional provision, and subsidiary to it. A rule relating to a matter of detail.

The deliberative and legislative work of the Association has heretofore nominally been undertaken by the body as a whole, but actually by its executive committee. The whole body, however, has clearly been too unwieldy, and the executive committee too small and not sufficiently representative. In this connection the Association of Class Secretaries has shown the effectiveness of thorough representation and appropriate organization. It was with their help, and largely as the result of their example, that the "Council" was conceived,—a body with duties chiefly legislative, but to a small extent administrative as well. The Council is not the Association of Class Secretaries renamed, but a body larger, more representative, and more authoritative. To it, with a representative from each graduate class and local Alumni Association,

with ten members at large from the Association, its executive committee, and its five most recent ex-presidents, and so constructed as to get continuity of policy intermingled with new thought, will the Association look for initiative, deliberative legislation and action.

The administration of the affairs of the Association at large and of the Council is put, by the new constitution, into the hands of the executive committee. This committee has some slight legislative and judicial powers as well, but in its administrative functions it is practically supreme. Its organization and manner of election will be the same as heretofore, and, in fact, it has been the central body around which changes have been made in effecting this reorganization."

The principal judicial functions of the Association are retained by itself as a whole. Certainly, no court for the settlement of disputes is necessary. Should any controversy arise, the Association itself will settle the matter through referendum.

It is not the intent of this article to emphasize the intricacy of organization nor to divert attention from the real work of the Association to its tools. To do good work, it is necessary to have good tools; but with what tools we now have, which should not prove far wrong, let us press on to the real work before us. Now that we have settled how to act, let us devote all attention and energy to acting.

A. F. BEMIS, '93.

Following are the new constitution and by-laws:—

CONSTITUTION

ARTICLE I.

This organization shall be called the Alumni Association of the Massachusetts Institute of Technology. Its object shall be to further the well-being of the Institute by fostering the interest of its members in the school and in each other.

ARTICLE II.—MEMBERSHIP.

SECTION 1. The membership of this Association shall be classified as regular, associate, and honorary.

SECT. 2. All graduates of the Institute shall be regular members.

SECT. 3. Any other person who has been connected as a student with any graduate class may become an associate member on election by the Executive Committee.

SECT. 4. Any present or former member of the Corporation or of the Faculty of the Institute may be elected an honorary member by the Executive Committee of this Association.

SECT. 5. Associate members and honorary members shall be entitled to all privileges of regular members, except that of holding the elective offices in this Association specified in Article III., Sections 1 and 2.

ARTICLE III.—OFFICERS, COMMITTEES, ETC.

SECTION 1. The officers of this Association shall be as follows: There shall be a President, two Vice-Presidents, and a Secretary-Treasurer, who, with four other members, shall constitute an Executive Committee.

The President and Secretary-Treasurer shall be elected for one year, the Vice-Presidents and members at large of the Executive Committee for two years.

One Vice-President and two members at large of the Executive Committee shall be elected annually.

SECT. 2. There shall be a Nominating Committee of six members, who shall serve for two years, three being elected each year. No member of this committee shall be eligible for immediate re-election.

SECT. 3. There shall be a Council composed of the five latest living ex-presidents, ten members elected at large, and one representative from each graduate class and from each local organization which is given representation by the Executive Committee. The officers mentioned in Section 1 shall be members of the Council.

The ten members at large shall be elected for terms of two years, five being elected each year. Representatives of classes shall be elected for terms of five years, and representatives of local alumni organizations for one year.

SECT. 4. Whenever the Executive Committee shall so approve, any local alumni organization (having its headquarters not less than twenty-five miles from Boston), certifying to a membership which includes twenty-five or more members of this Association, shall be given representation in the Council.

ARTICLE IV.—ELECTIONS.

SECTION 1. The officers of this Association and others holding elective positions referred to in Article III., and candidates for election to the Corporation, shall be chosen by letter ballot.

SECT. 2. Only members of this Association are privileged to vote for representatives of classes or representatives of local alumni organizations.

ARTICLE V.—DUTIES OF OFFICERS.

SECTION 1. The duties of the President, Vice-Presidents, and Secretary-Treasurer shall be those commonly pertaining to their offices. They shall perform the same duties for the Council.

SECT. 2. The Executive Committee shall look after the general interests of the Association, shall have power to fill all vacancies arising among officers or committees elected by the Association, shall have full charge of all balloting, shall pass upon all applications for honorary and associate membership in the Association, and shall have charge of the office and routine work of the Association. It shall also be the Executive Committee of the Council.

SECT. 3. The Council shall act as the representative of this Association in the consideration of all matters not otherwise delegated.

At the request, in writing, of any twenty-five members of the Association, the Council shall consider any matter pertaining to the general welfare or work of the Association, make recommendations thereon, and, if so requested, shall through the Executive Committee, poll the Association by letter ballot,—said ballots to be mailed within thirty days of receipt of such request.

SECT. 4. The duties of the Nominating Committee shall be to present, through the Secretary, nominations for all offices to be filled and nominations for candidates for election to the Corporation.

ARTICLE VI.—MEETINGS.

Meetings of the Association may be called at any time by the Executive Committee, and shall be so called at the request, in writing, of any twenty-five members of the Association.

ARTICLE VII.—AMENDMENTS.

This Constitution may be amended at any time by letter ballot. Proposed amendments, either indorsed by the Council and approved by the Executive Committee, or indorsed by fifty members of the Association, shall be sent by the Secretary to all members of the Association, with notice of the time of closing the polls, which shall be not less than thirty days from the date upon which the notice of proposed amendment is sent out.

BY-LAWS.

ARTICLE I.—ELECTIONS.

SECTION 1. Prior to October 10 the Nominating Committee shall transmit to the Secretary nominations for the offices to be filled and nominations for term members of the Corporation of the Institute. The nominations for election to the Corporation shall be at least five more in number than the places to be filled. The Secretary shall publish the nominations transmitted by the Nominating Committee in at least one daily paper in the city of Boston before October 15. Additional nominations for any office or for election to the Corporation, signed by at least thirty members of the Association entitled to vote for such nominees, shall be placed on the official ballot by the Secretary if received by him before November 5.

SECT. 2. Prior to November 20, letter ballots containing the names of all candidates shall be sent by the Secretary to all members of the Association entitled to vote for such candidates. In order to be counted, a ballot must be returned to the Secretary, enclosed in an envelope indorsed with the voter's signature and class. The polls shall close December 20, and the Executive Committee shall thereupon canvass all ballots and announce the result. The candidates receiving the largest number of votes shall be deemed elected. Should there be a failure to elect on account of a tie, the tie shall be resolved by lot drawn by the Secretary.

SECT. 3. At least thirty days before the March meeting of the Corporation, the Secretary shall send to the Nominating Committee of the Corporation the names of the candidates receiving the largest number of votes for election to the Corporation, in number two more than the number of vacancies.

SECT. 4. If any vacancy occurs among the term members of the Corporation through death, resignation, or otherwise, the Alumni Association shall choose for each vacancy two candidates in addition to those chosen according to the provisions of Section 2 of this Article.

SECT. 5. Only members of the Alumni Association who have not been connected with

the Institute as students for at least five years shall be entitled to vote for term members of the Corporation.

SECT. 6. Nominations for representatives to the Council shall be made by the organizations which they represent, but the Executive Committee shall have charge of all balloting for election thereof.

SECT. 7. For the first year of the Council, the ten members at large shall be elected five for a term of one year and five for a term of two years, and the representatives of classes whose years end in 1 or 6, 2 or 7, 3 or 8, 4 or 9, and 5 or 0, shall be elected respectively for one, two, three, four, and five years. The provisions in Sections 1, 2, and 3 of this Article shall not apply in the case of nomination and election of these members and of the first set of representatives of alumni organizations, but all matters relating thereto shall be in the hands of the Executive Committee.

Committees already elected by this Association shall continue for the terms for which they were chosen or until their successors are chosen by the Council.

This section shall become void when its provisions have been carried out.

ARTICLE II.—BRANCH ASSOCIATIONS.

Any ten former students of the Institute residing in a given locality may form a local alumni organization, which, upon approval of the Executive Committee, may be enrolled as a branch association, providing, however, that not more than one such organization shall be recognized in any one district. Lists of members, with addresses, shall be annually sent to the Secretary by each branch organization.

ARTICLE III.—ASSOCIATE MEMBERSHIP.

SECTION 1. Any non-graduate member of a class which has been graduated may become an associate member on election by the Executive Committee. Applications for associate membership shall be submitted in writing to the Executive Committee. The names shall be voted upon by ballot, and the affirmative votes of a majority of the entire Executive Committee shall be necessary to elect. The names of those elected shall be published by the Secretary in the official organ of the Association.

SECT. 2. The Secretary shall notify each associate member whose dues have remained unpaid for three consecutive years, such notice to be sent by mail to the member's last-known address; and, if at the expiration of thirty days after sending such notice such dues are still unpaid, such associate membership shall be forfeited. The Executive Committee may, however, at its discretion, reinstate such persons upon the payment of all arrears.

ARTICLE IV.—MEETINGS.

The annual meeting of the Council shall be held in January. Special meetings may be called at any time by the Executive Committee, and shall be so called at the request, in writing, of ten members of the Council.

ARTICLE V.—COMMITTEES.

The Council shall have power to appoint standing committees not otherwise provided for in the Constitution or By-laws.

ARTICLE VI.—DUES.

SECTION 1. The annual dues for regular and associate members shall be \$2.

SECT. 2. A payment of \$25 at any one time shall exempt any member from further payment of dues.

ARTICLE VII.—OFFICIAL ORGAN.

SECTION 1. THE TECHNOLOGY REVIEW shall be the official organ of this Association, and its editorial management and publication shall be vested in the Council.

SECT. 2. Members not in arrears shall be entitled to receive all publications of the Association.

ARTICLE VIII.—AMENDMENTS.

These By-laws may be amended at any time by a majority vote of the full membership of the Council, provided thirty days' notice of such amendment has been given through publication in the REVIEW.

Growth of the Society of Arts

The winter programme of the Society of Arts of the Institute was opened December 7 by an address on the Charles River Basin improvements. About four hundred were present. Dr. Louis Bell lectured on "Modern Illuminants and Illumination," December 17. On January 13, Dr. William H. Walker, of the Laboratory of Applied Chemistry, will give an address on "The Corrosion of Iron and Methods of Preventing It." January 28, Dr. Charles P. Steinmetz, of Schenectady, will talk on the Future of Electricity. On the anniversary of the birth of Charles Darwin the Society will hold a memorial meeting. Professor Charles E. Lucke, of Columbia University, will give a lecture on "The Gas Engine and its Relation to Other Prime Movers." Professor Robert S. Woodward, president of the Carnegie Institution, will address the society on the "Larger Research Problems of the Carnegie Institution." Professor George E. Hale, director of the Mount Wilson Solar Observatory of the Carnegie Institution, Pasadena, Cal., will address the society some time in April on "Recent Advances in Astrophysics." Other lectures are being arranged for. Over fifty new members have joined the society this year.

RESULT OF ALUMNI ELECTION

Snow, Robinson, Richards, French and Whipple are Nominated
for the Corporation

At the election for officers of the Alumni Association and term members of the Corporation, which closed on the 20th, the following officers of the Alumni Association were elected: Edwin S. Webster ('88), president; Frank E. Shepard ('87), vice-president; Walter Humphreys ('97), secretary; William S. Johnson ('89) and Charles F. Park ('92), executive committee; Harry W. Tyler ('84), Edward H. Huxley ('95) and Frederick H. Hunter ('02), nominating committee; Linwood O. Towne ('78), committee on school; James P. Munroe ('82), trustee of the alumni fund and of the life membership fund; Frank H. Briggs ('81), advisory council on athletics.

The five candidates elected for term members, from which the Corporation will choose three, are Walter B. Snow ('82), Theodore W. Robinson ('84), Charles R. Richards ('85), Hollis French ('89) and George C. Whipple ('89).

Brief sketches of the men selected are given below:—

WALTER B. SNOW, '82. Graduate in Mechanical Engineering. Publicity Engineer, 170 Summer Street, Boston, Mass.

One year each as Assistant in Mechanical Engineering, M. I. T., as machinist and as shop foreman. For twenty-two years with B. F. Sturtevant Company as draughtsman, chief draughtsman, mechanical engineer, manager of Advance Department, and in charge of design and construction of new plant at Hyde Park, Mass. Publicity engineer, conducting publicity for various engineering and manufacturing concerns, 1907-08.

Author of "Mechanical Draft" and "Steam Boiler Practice." Contributor to the engineering press. As lecturer, has visited the leading technical schools of the country.

Member American Society of Mechanical Engineers, Societies for the Promotion of Engineering and Industrial Education, Industrial Committee of the Twentieth Century Club, Boston, Massachusetts Commission for the Blind, and Board of Trustees of the Watertown Free Public Library.

Secretary of Class of '82. Secretary of the Association of Class Secretaries for the first six years of its existence. Successively member of executive committee, vice-president 1903-06, and president, 1908, of the Alumni Association. Member of publication committee of THE TECHNOLOGY REVIEW, and in the past of various committees concerned with the activities of the Alumni Association.

THEODORE W. ROBINSON, '84. Graduate in Mining Engineering. First Vice-President Illinois Steel Company, Chicago, Ill.

Chemist Joliet Steel Company, 1885-89. Manager Blast Furnaces Illinois Steel Company, Milwaukee, Wis., 1889-92. General superintendent Colorado Fuel and Iron Company, Pueblo, Col., 1892-99. Illinois Steel Company, 1899-1908.

Chairman School Management Committee of the Chicago Board of Education. Chairman Illinois Committee of National Society for the Promotion of Industrial Education. Member American Institute Mining Engineers. Member British Iron and Steel Institute.

President North-western Alumni Association 1892 and 1903.

CHARLES R. RICHARDS, '85. Graduate in Mechanical Engineering. Director of Cooper Union, New York city.

Assistant superintendent Whittier Machine Company, 1886. Director Department of Science and Technology, Pratt Institute, 1888-98. Director Department of Manual Training, Teachers' College, Columbia University, 1898-1908. Trustee Children's Aid Society of New York, 1904-08. First secretary National Society for the Promotion of Industrial Education, 1906-08. Special Agent Department of Labor, State of New York, in charge of investigation into labor supply in industries of the state, 1907-08.

Member American Society of Mechanical Engineers.

President Technology Club of New York, 1908.

HOLLIS FRENCH, '89. Graduate in Electrical Engineering. Member of the firm of Hollis French & Allen Hubbard, consulting engineers, Boston, Mass.

After spending about a year in the works of the Thomson-Houston Electric Company and nearly two years in Europe as representative of the Thomson Electric Welding Company, became associated with Messrs. Stone & Webster until 1894. In private practice as consulting engineer in Boston until 1896, when the present partnership with Mr. Allen Hubbard (Yale, '83) was formed. Their practice consists of the design of power stations for steam and electric work, the development of water power and its transmission and application by electricity, domestic engineering in modern buildings, etc.

The firm has a large practice. They are consulting engineers for a number of important corporations.

GEORGE C. WHIPPLE, '89. Graduate in Civil Engineering. Consulting Engineer, New York city.

Biologist Boston Water Works, 1889-97. Director of Laboratory of the Brooklyn Water Works, and Department of Water Supply, Gas and Electricity, New York city, 1897-1904. Department engineer, Commission on Additional Water Supply, New York city, 1903. Member of firm, Hazen & Whipple, consulting civil engineers, 1904-08. Also Consulting Professor of Water Supply Engineering, Brooklyn Polytechnic Institute.

Author of "Microscopy of Drinking Water," "Value of Pure Water," "Typhoid Fever," besides many scientific memoirs.

Member American Society of Civil Engineers. Member (president) Brooklyn Engineers' Club. Member American Chemical Society. Member Society of American Bacteriologists. Member American Public Health Association. Member American Water Works Association. Member New England Water Works Association. Member Society of Municipal Improvements. Fellow American Society for Advancement of Science. Fellow Royal Microscopical Society of London. Member Society for Promotion of Engineering Education. Member Society of Arts, Boston. Member National Arts Club, New York.

Member Technology Club of New York.

Alumni Dinner, January 14

The annual Alumni Dinner, which will be held January 14, will unquestionably be the largest and most enthusiastic dinner that the Association has ever held. The Association has now outgrown any Boston hotel, and it has been decided to hold the dinner at Horticultural Hall, which is admirably arranged for such an event, as a thousand people can be seated there comfortably.

The speakers will be Dr. Maclaurin, President-elect of the Institute; Dr. Noyes ('86), Acting President; Governor Eben S. Draper ('78) and Professor Robert S. Woodward, president of the Carnegie Institution.

One important innovation will be selections rendered by the Glee Club, which will also lead the singing, the singing tables being located adjacent to the Glee Club table. This will be the first presentation of Dr. Maclaurin to the alumni, and it will be an occasion of great importance of a most important year.

AMONG THE UNDERGRADUATES

The Beginnings of a Wholesome Social Life—A Study in Student Organization

Since the Institute opened for the fall term, everything connected with the social side of student life has centred in and about the new Technology Union on Trinity Place. It has been a source of inspiration and strength for every student interest, and has inaugurated a new era of vastly changed and improved conditions for the undergraduates.

The Union serves as a regular boarding place for about 150 men who believe they can live here cheaper and better than elsewhere. About 700 patronize it for lunch every day, and during the day it is well filled with students preparing work or passing away time between lectures.

Three times a week, on Mondays, Wednesdays and Fridays, the musical clubs furnish a leader and pianist, and for half an hour, between half-past one and two o'clock, the men practise Tech songs around the piano. There is a private dinner here almost every evening, and sometimes two or three; and every Friday night occurs the regular smoker, when the Entertainment Committee provides some attractive programme. These entertainments consist of lectures, excellent concerts by the musical clubs, and recently a "hook" night, when local talent furnished amusement of a convulsing character. Here, also, are located the offices of the various student activities, where opportunities are afforded for conducting business in a business-like way, and although the quarters are cramped, the results are most encouraging.

The new Union has made possible the carrying out of an innovation by the undergraduates which has attracted the attention of the entire college world. The Institute Committee has recently been reorganized, and is now a representative body of about twenty-

five men, embracing all student interests. At the head of this body is the Executive Committee, consisting of five members, who may be appointed from the student body at large. This committee has rather limited powers, its functions being to prepare matters and bring them to the attention of the Institute Committee in such a way that they can be intelligently and promptly acted upon. It has taken for its province any matter that may have bearing on the welfare of students. The Institute Committee appoints the members of the Union Committee, from whom it receives weekly reports and over whom it exercises a sort of general oversight. Other interests have recognized it in this capacity, and have asked the committee to act as an advisory board. The representatives of the Institute Committee are in close touch with the alumni and with the Faculty, so that in another way co-operation is playing a large part in developing an unusual undergraduate organization.

The new "point system" adopted by the Institute Committee is explained in the following from *The Tech* of October 9. A few changes have since been made.

"The object of this report is to propose a scheme whereby the labor connected with student activities may be distributed as widely as possible, interest in athletics and social life may be stimulated, and standard of scholarship among those interested in these matters may be raised. This plan is based on the assumption that every man will properly perform the duties attached to his office, and we have been guided by the standard of benefit to the general social life and to the whole student body of the Institute.

"The plan is to rate every position carrying with it specific duties at a number of points indicated by the scheme below, and to allow no one person to occupy positions aggregating more than ten points. The plan is to be administrated by the Institute Committee or by a sub-committee appointed by them."

The scheme of division follows:—

Class A. 10 points: editor-in-chief of *The Tech*; editor-in-chief of *Technique*; general manager of Tech Show; president of the senior class.

Class B. 9 points: managing editor of *The Tech*; business manager of *The Tech*; business manager of *Technique*; general manager of the musical clubs; business manager of Tech Show; stage manager of Tech Show;

president of the junior class; Executive Committee of the Institute Committee; manager of the track team.

Class C. 8 points: president of the M. I. T. A. A.; president of the Y. M. C. A.; presidents of the professional societies; members of the editorial and business staffs of *The Tech*; members of *Technique* board; captain of track team; president of the sophomore class; president of the freshman class; advertising manager of Tech Show; Junior Prom. Committee; Senior Portfolio.

Class D. 7 points: members of the Institute Committee; assistant business managers of Tech Show.

Class E. 6 points: assistant advertising managers of Tech Show; principals of Tech Show; manager of the basket-ball team; manager of the hockey team; manager of the tennis team; assistant general manager of the musical clubs; leaders and managers of the musical clubs.

Class F. 5 points: chorus of Tech Show; assistant manager of the track team; *Technique* Electoral Committee; candidates for track, cross country, hockey, fencing, and basket-ball teams; members of the musical clubs.

Class G. 4 points: managers of class teams; assistant managers of basket-ball, hockey, and fencing teams; news staff of *The Tech*; managers of the golf and tennis teams; *Architectural Record*.

Class H. 3 points: members of and candidates for class teams; treasurers of classes; secretary-treasurer of the M. I. T. A. A.; undergraduate members of the Advisory Council; members of and candidates for golf and tennis teams; gymnasium team.

Class I. 2 points: secretaries of classes; members of the M. I. T. A. A.; secretaries and treasurers of professional societies; officers of the Civic Club; secretary-treasurer of the Y. M. C. A.

Class J. 1 point: vice-presidents of all organizations; standing committees of professional societies; standing committees of the Y. M. C. A.; officers of the Co-operative Society; president and secretary of the musical clubs; officers of all other clubs of open membership.

"Note 1. Where membership in a lower class is a necessary adjunct to a position in higher class, only the higher number of points will be counted.

"Note 2. As a special encouragement to athletics, men in classes B, C, and D and E may also be candidates for any 'varsity or class athletic teams, said candidacy being counted at 1, 2, 3, and 4 points respectively.

"Note 3. Where the duties of any office are confined to a limited time,

the points for that office shall be counted only between definite limits of time to be set by the Institute Committee.

"Note 4. The Institute Committee or a sub-committee of it shall decide cases outside the ground covered by this scheme with such changes as may be adopted; but no special exception or exemption from this ruling shall be permitted."

The enthusiasm fostered by these recent advances is finding an outlet in the various forms of athletic sports in which Institute students find time to indulge. Cross-country racing, which for the last two or three years has been increasing in popularity here, has developed a team this year which defeated Harvard by a decisive score, and proved itself superior to the teams of all other colleges except Cornell in the intercollegiate contest at Princeton. The fencing team begins the season with very encouraging prospects, having in addition to Grübnaue and Loring, who did excellent work last year, Ensign Knox, who won his "N" as captain of the fencing team at Annapolis, and who was champion fencer on the team of the battleship "Virginia." He entered the course of Naval Architecture this year. The basket-ball team won its first contest handily over the Dartmouth team at Hanover, and promises to give an excellent account of itself all through the season. Much interest is taken in hockey, and a large number of last year's successful team are again competing for a place. Never in the history of the event was there a more closely contested Field Day than that held on November 6, and never were the freshman and sophomore classes so nearly matched. The unusual result of the contest was that the freshmen won both the tug-of-war and the football match, the latter after a most pluckily fought battle. Field Day is now an event of much importance, and the crowd this year was a record breaker for Tech Field. The next important athletic event is the indoor meet, January 8. There is a large field practising for this event, and there is much speculation as to which class will carry away the honors. Among the students who registered this year is W. R. Dray (Yale, '08), holder of the world's pole vault record of 12 feet, 9 $\frac{3}{4}$ inches. Much of the improvement that has taken place in athletics is due to the hard work and energy of Coach Kanaly, who has done wonders with the men.

Because of compulsory work in the freshman year, physical training is a much more integral part of the business of the Institute than it has been before. Regular instructors are provided, who make anthropometric measurements of the men with a record of their physical condition, so that improvement during the year may be noted. During the fall Dr. Dudley Sargent, of the Hemenway Gymnasium, gave a series of lectures in which he made a plea for athletic students rather than student athletes. The impetus which compulsory physical training has given to gymnasium work will no doubt develop a very strong gymnasium team before the season is over.

The enterprise that marked *The Tech* last year is continued under the present management, and the influence it exerts on all undergraduate interests is strong and helpful. It is still published three times a week, although the editors find it difficult to properly present the news and are seriously considering publishing a daily paper. That this movement will be made before long there is little doubt. Things are moving so fast here just now that the alumni will find it well worth their while to subscribe to *The Tech* in order to keep posted during the coming period of great alumni and undergraduate activity. *The Tech* is a newspaper in the real sense of the word. It is dignified, serious and is wholly devoted to advancing the interests of the Institute.

Since the last REVIEW was issued, the student correspondents of the various daily papers met and formed the Technology Press Association, having for its object the advancement of the interests of the Institute. Every Boston daily paper is represented in this organization, as is also the Associated Press. Those who read the Boston papers have had an opportunity to observe how efficient the news service is. It will interest the alumni to know that the publication of the news relative to the appointment of Dr. MacLaurin was handled entirely by the Technology Press Association, and the interview with Dr. MacLaurin clipped from the *Herald*, which was sent to members of the Alumni Association, was secured by a member of the Technology Press Association, who went to New York for the purpose. The news is now gathered and dis-

tributed to the papers systematically, and, so far as it is possible, the student reporters prevent sensational news from being published.

The annual Tech Show has reached a point where it is now considered by good judges to be equal, if not superior, to any other college production, and the forthcoming show promises to be by far the most successful yet given. The book this year is written by S. A. Malcolm ('10), and differs from the shows of ten years past in that the scenes have not a Technology setting. The plot of the play is based on the landing of the Pilgrim Fathers, part of the action being laid in Holland and part in America. It is said to be filled with bright skits and catchy lines. The show is given during Junior Week, which occurs in April. The management has been fortunate in securing James R. Francis, who has so successfully coached the last three shows.

To those of the older men who have never seen a *Technique*, the recent books would be a revelation. No better college annual is produced in the country than this one, which is an effort of the junior class and is brought out Junior Week. Work on the 1910 *Technique* is now going forward.

What has been said of athletics and other activities is also true of the musical clubs, which are vastly improved over those of former years. The concerts of the Glee Club have been received with great enthusiasm and appreciative audiences. Alumni who attend the annual dinner on January 14 will hear selections from the Glee Club, and it is likely that the orchestra of the musical clubs will furnish the instrumental music for that occasion.

The different professional societies are also making rapid advances. Every department at the Institute is represented by a flourishing undergraduate organization, which gets into closer relations with the outside world through evening talks by some representative engineer or manufacturer. The record of the season's activities of these societies would take up more space than the REVIEW can devote to it. It is sufficient to say, however, that they are accomplishing not only a tremendous amount of good in a social way, but by supplementing the courses of instruction and imparting valuable information in an attractive way.

During very recent years it has been the custom to occasionally convene the students in Huntington Hall for the purpose of listening to an address from some man of note. Since the fall term began, there have been three convocations, which were addressed by Cameron Forbes, Governor of the Philippines, on October 29; Benjamin Ide Wheeler, president of the University of California, on November 12; and by Dr. Maclaurin, President-elect of the Institute, on December 15. These convocations are very popular with the students, who assemble fifteen or twenty minutes before the appointed time in order to indulge in congregational singing and cheering under song and cheer leaders.

The enforcement of the "point system" by the Institute Committee has made it necessary to press a large number of new men into service. This is true of each of the four classes, and it has had the immediate effect of stimulating the classes to greater action. The juniors were probably more seriously affected by it than any other class, but they voted to uphold the Institute Committee in its action, realizing the eventual good that would come from it. The students are looking to 1910 to carry out the excellent work that has been started by the seniors, and it will require the best talent the class can offer to continue the work that has been so ably begun. The sophomores, although defeated on Field Day, are good losers, and are making plans to increase interest in class affairs. The freshman class seems to be one of much promise, and to it we look for large things. It has so far risen to its privileges quite as it should, and the "point system" is developing individuals who will be of much use to the interests of the class and Technology during the coming four years. 1912 realizes the unusually favorable position in which it is placed, entering, as it did, at an auspicious time, and seems to be taking advantage of every opportunity to help in the general advancement.

Every year the number of sons of Tech men who enter the Institute is growing larger. There are no statistics telling how large this number is. A few of the men who are identified as sons of Tech men are: D. F. Baker, son of D. Baker ('85); G. W. Bowers, son of G. Bowers ('75); S. Cabot, Jr., son of S. Cabot ('70);

K. W. Faunce, son of L. Faunce ('77); N. G. Herreshoff, Jr., A. S. D. Herreshoff, and A. G. Herreshoff, sons of N. G. Herreshoff ('70); I. S. James, son of S. James ('76); W. C. Kerr, C. P. Kerr, sons of W. H. Kerr ('83); C. R. Main, son of C. T. Main ('76); H. F. Miller, son of E. C. Miller ('79); R. E. Morse, son of P. S. Morse ('84); F. B. Silsbee, son of F. H. Silsbee ('74); E. F. Stimpson, son of T. F. Stimpson ('77); J. B. Tenney, son of F. Tenney ('83); E. C. Tolman, son of J. P. Tolman ('68); and F. B. Wood, son of F. W. Wood ('77).

In welcoming the entering class at the first convocation of the year, President Noyes said:—

You will find here a characteristic Institute student spirit,—one which cannot be matched, I believe, at any other college. Thus the antagonism between the two lower classes, which in many colleges leads to hazing and rushes, is here replaced by friendly rivalry in athletic contests and by true comradeship between members of the different classes in the numerous student activities. . . . That spirit is well illustrated by a variety of facts relating to our student life. Thus, in not many institutions, I believe, would the trustees venture to place the management of a dining-room doing a business of \$30,000 a year, or even a club-room with all the inherent possibilities of abuse and disorder, in the charge of students, as has been practically done with the new Technology Union by the Institute Corporation; nor in many colleges would the Faculty dare to relinquish all share in the control of athletics. Moreover, in few places have the students collectively taken such sane interest in the promotion of their own welfare. As you know, the Institute Committee has recently adopted the "point system" to avoid excessive participation of individuals in social or athletic activities. The second-year class has taken such action as to do away with the useless and harmful activities of the night before Field Day. The Tech Show management of last year insisted that students should not take major parts who by so doing would be prevented from keeping up with their class. I mention these things, so that those of you who have come here for the first time may know that, though you may miss here some of the boyish features of college life, you will find in place of them a sounder, more manly sentiment, which is even more conducive to the development of a successful student life.

ALUMNI ARE ACTIVE

Class Secretaries recommend New Constitution and turn the "Review" over to Alumni Association—New Technology Associations at Portland, Ore., and Seattle, Wash.—Enthusiasm over Reunion

ASSOCIATION OF CLASS SECRETARIES.—The Association of Class Secretaries has held two meetings recently to discuss the proposed constitution and attend to other business. The first one was held October 16, and was a joint meeting with the Executive Committee of the Alumni Association. This meeting was held at the new Tech Union, and was called to consider plans for the Second Tech Reunion of 1909 and receive the report of a special joint committee on the proposed reorganization of the Alumni Association.

In speaking of the coming reunion, Secretary Fay ('93) called attention to the fact that, while the 1904 alumni mailing list contained less than 4,000 names, it now numbers about 8,700,—the increase being due largely to the addition of names and addresses of former students, not graduates, many of whom have not been in touch with Institute affairs for years. About 1,600 were present at the first reunion, and it is reasonable to expect that we may have a larger number next year. It was moved and enthusiastically carried that we have a reunion in 1909, and that the slogan for the reunion be "co-operation." Professor Allen ('72) moved that the whole matter of the reunion be placed in the hands of the executive Committee of the Alumni Association, and that the Association of Class Secretaries pledge its most hearty co-operation.

A. F. Bemis ('93), chairman of the special joint committee, presented the majority and minority reports on the new constitution and by-laws, after which a lively discussion followed. The constitution and by-laws presented in this number of the REVIEW were

finally unanimously adopted. The total attendance at this meeting was forty-seven.

On November 12 occurred the twelfth annual meeting of the Association of Class Secretaries at the Technology Club, with Professor Richards ('68) in the chair. Dr. Noyes addressed the members, telling them about the new President, whose election had just been made public. There was a long Technology cheer given for Dr. Noyes and Professor Maclaurin, and the following telegram was sent to the latter: "Technology Association of Class Secretaries, assembled at annual meeting, sends greetings and pledges of loyal co-operation to our next President."

The present officers of the association were re-elected. On motion of Mr. Munroe ('82) a vote expressing the appreciation of the secretaries for the work that Dr. Noyes has done was enthusiastically carried.

I. W. Litchfield ('85), managing editor of the REVIEW, presented the annual report of THE TECHNOLOGY REVIEW. It showed that the publication is on about the same basis as it was a year ago. New plans for the future were presented, and the secretaries were asked to co-operate in securing advertising for the January REVIEW. The chief items of the financial report are as follows: receipts from advertising, subscriptions, etc., \$2,905; expenses, \$2,864; bills payable, \$390; bills receivable, \$243,—leaving the REVIEW little over a hundred dollars in debt. The balance on hand at the beginning of the year, however, was somewhat less than a year ago. The number of subscriptions to Volume IX. was 1,529; Volume X., 1,607,—increase of 78. Old subscribers who renewed to Volume IX., 1,173; Volume X., 1,406. Percentage of renewals, Volume IX., 86.4; Volume X., 87.4. The advertising in Volume IX. was \$1,222; advertising in Volume X. was \$1,100, which is considered a very small loss during a trying period.

Walter Humphreys ('97) spoke of the advantages of associate membership, showing that the associate member of to-day has all the privileges of the regular graduate excepting that of holding certain elective offices. On motion of Secretary Fay it was unanimously voted that the publication of THE TECHNOLOGY REVIEW

be transferred to the Alumni Association, and on the motion of Professor Allen it was voted that the Association of Class Secretaries assume the financial responsibility of the January REVIEW to an amount not exceeding one thousand dollars. On motion of Professor Allen the thanks of the Association were extended by unanimous vote to Mr. Munroe for his services in connection with the publication of THE TECHNOLOGY REVIEW from its beginning to the present time.

The plans for the Technology Reunion, 1909, were discussed, and F. G. Stantial ('79), suggested the need of a music director to coach the alumni and undergraduates in singing. The chairman appointed a committee to take this matter in hand and to confer with the Reunion Committee in regard to it. The committee appointed was Mr. Stantial ('79), Professor Mott ('89), and Maurice R. Scharff ('09).

THE TECHNOLOGY CLUB OF PUGET SOUND.—On Friday evening, November 20, a dozen Technology men met at an informal dinner at Seattle, Wash., to greet Dean Alfred E. Burton and renew allegiance to Technology. The Dean told us of the great advances that the Institute has made, and outlined the plans for the Reunion of 1909, which, we understand, is to be the best ever. To some of us, who have not had fresh news from the Institute for several years, the description of the new plans for athletics and the provisions for student welfare were good to hear. During the evening the Technology Club of Puget Sound was formed with the following officers: president, Frank Dabney ('75), Seattle; secretary, Medorem W. Greer ('91), Tacoma. It was agreed to have at least two dinners each year for the promotion of good fellowship among Tech men in the Puget Sound district, and the stimulation of Technology spirit.

Those present at the dinner were: Dean Burton, Boston; Frank Dabney, L. T. Bushnell, Q. P. Emery, R. L. Rice, W. S. Matheson, Nahum C. Willey, David W. Phipps, B. C. Mooers, B. R. Grant, and L. A. Wallon, from Seattle; J. R. Morse and M. W. Greer, from Tacoma. There are at least thirty odd Tech men in this vicinity who will undoubtedly join the Association.

The secretary's address is 952 Commerce Street, Tacoma, and any visiting Tech man is urged to let the secretary know of his whereabouts, if he is in our vicinity. The Technology Club of Puget Sound wishes to congratulate the Institute on obtaining President Maclaurin, and wishes him God-speed in his work.—*M. W. Greer* ('91), *Secretary*.

CINCINNATI M. I. T. CLUB.—At the meeting of this club held June 17 the following officers were elected: president, Rudolph Tietig ('98); vice-president, Stephen H. Wilder ('74); treasurer, William E. Brotherton ('73); secretary, H. F. Schaefer ('05). Executive committee: one year, Morten Carlisle ('90); two years, A. S. Prince ('05); three years, Stewart Miller ('06).

This club usually has one annual meeting, which is sometimes held during the first week in February. We have informal meetings every Tuesday at 12.15 A.M., at which time several members gather at the Bismarck Café and take lunch together. We hope to have several members at the grand Reunion in June, although it is a little early to tell just how many.—*H. F. Schaefer* ('05), *Secretary*.

WASHINGTON SOCIETY OF THE M. I. T.—The Washington Society will meet monthly during the winter, on the fourth Monday of the month, at the University Club, 930 16th Street, N.W. The secretary is Arthur Cutts Willard ('04), 2204 Decatur Place, Washington, D.C.

The Washington Society will take an active interest in the 1909 Reunion, and special care will be taken to have all the men go that can. At least one of our monthly meetings will be devoted to the consideration of the June Reunion.—*A. C. Willard* ('04), *Secretary*.

TECHNOLOGY CLUB OF HARTFORD.—On November 28, about 25 members enjoyed a very pleasant evening at the Heublein, listening to a description of the new silent fire-arm invented by Hiram P. Maxim ('86). Mr. Maxim had about a dozen rifles of various kinds, both American and foreign, to which the silencer was attached when the demonstrations were given during the evening. The experiments that were made were perfectly satisfactory. There was no

noise of explosion, the whistle of the bullet through the air and the thud of impact being the only audible sounds. Without the muffler the noise was deafening.

It is the intention of this club to hold monthly meetings during the winter on the first or second Saturday of the month. The annual meeting of the club will be held in February. The secretary's address is 50 Highland Street, Hartford, Conn.—*George W. Baker* ('92), *Secretary*.

M. I. T. CLUB OF CENTRAL NEW YORK.—On November 17 the second annual meeting of the club was held at the University Club in the form of a smoker. The various late bulletins and letters from the Institute were read and discussed with great interest. Considerable enthusiasm over the 1909 general Reunion was shown, and there is little doubt that the club will be well represented on that occasion.

Our plans for the year are as follows: the annual meeting is held on the second Monday in November, with the midwinter banquet coming during the mid-year vacation in order to bring the undergraduates into contact with the older men. It is the intention to hold informal gatherings every other month at the homes of the members.

At the last annual meeting the following officers were elected for the ensuing year: president, W. E. Hopton ('91); vice-president, F. D. Ingalls ('01); secretary-treasurer, Ernest M. Smith ('06), 1615 West Greene Street, Syracuse, N.Y.; executive committee, H. W. Jordan ('91), J. C. Baker ('05).

We are all very anxious to keep in close touch with the Institute activities, and especially so at this time, when such vital questions are being decided as may determine the future welfare of Technology.—*Ernest M. Smith* ('06), *Secretary-treasurer*.

THE TECHNOLOGY CLUB OF NEW YORK.—Events of interest and importance have marked the last three months.

The season opened with an evening devoted to '08 men, who were welcomed by members of the club at a bowling party.

In October a special meeting was held for the threefold purpose

of changing the number of governors from five to ten, of permitting the election of five governors chosen one in each year for terms of five years from assigned classes and five governors chosen annually for one-year terms from the membership at large; and of facilitating amendments to the constitution. These changes were almost unanimously adopted, and, as a result, the work of the club will be shared by more men, the board of governors will be more responsive to the desires of the majority of the members, and the responsibility for the success of the club is placed upon all Tech men in New York.

At a smoker on December 5 at our present modest club-house, Mr. George A. Orrok ('89), mechanical engineer with the New York Edison Company, gave a very interesting talk on "The Romance of Engineering," and showed the important part that imagination has taken in engineering achievements.

Plans are in progress for the annual dinner in February, and this year we are looking forward to the presence of our distinguished new President of the Institute. Meanwhile we hope to receive many applications for membership, so that every Tech man in New York may meet him as a member of this club.—*William H. King* ('94), *Secretary, 36 East 28th Street, New York.*

TECHNOLOGY CLUB.—The Technology Club commenced its winter season with the club-house in excellent condition. During the summer the dining-room and common room were redecorated, and much-needed repairs to the common room furniture were made. A magazine rack has been placed in the small office on the second floor, and back numbers of magazines for the current year will be kept on file.

Three smoke talks have been held during the present season. On October 20 Mr. Seth K. Humphrey told, in his usual witty style, of his experiences in the Holy Land, and showed a fine collection of photographs taken on the trip. On November 6 Professor William C. Story, of Clark University, spoke interestingly of various types of mathematical puzzles. The talk was original, and was illustrated with numerous blackboard puzzles, card tricks, and feats of memory. On November 8 Mr. James B. Connolly entertained

the largest audience of the season with a breezy description of his trip around Cape Horn with the battleship fleet.

Under the management of the new steward, Mr. Alfred Sydney, the dining-room has been much improved, and the increased patronage of the restaurant promises a successful season.—*Robert S. Williams, Secretary, 83 Newbury Street, Boston.*

TECHNOLOGY ASSOCIATION OF OREGON.—On the 19th of November last was organized at Portland, Ore., the Technology Association of Oregon. At that time Dean Burton was visiting in the Pacific North-west, attending the Educational Congress at Whitman College, Walla Walla, Wash., and the Tech men at Portland seized the opportunity to get together. This was the second time that the Tech men in this locality had ever been together. The only previous gathering had been in September, at which time the organizing of a permanent association was discussed and committees appointed for that purpose. At the Dean Burton dinner these committee reports were received, a constitution adopted, officers elected, and the youngest Tech alumni association started on its career. Mr. E. F. Lawrence ('01) was chosen president, and A. G. Labbé ('07), secretary and treasurer. These are the only officers of the association except an executive committee composed of W. B. Ayer ('82), S. G. Reed ('94), and B. R. Honeyman ('06).

The purpose of the association is to bring together the Tech men in and about Portland and promote the interests of the Institute in that locality. It is the intention to have at least one formal banquet each year, probably at the time of the annual meeting in May. The organization is too young as yet to have formulated any definite plan for meeting, but there will be held informal meetings and smokers from time to time. There are about twenty-five Tech men in Oregon, not including the undergraduates registered from there.

It was a great pleasure to the men so far removed from their Alma Mater to have Dean Burton with them and receive at first hand all the latest news of Tech's activities. Professor Burton's remarks were listened to with great interest. W. B. Ayer, E. F. Lawrence, and others made short remarks, and much Tech enthu-

siasm was manifest. Before adjourning a telegram of congratulation was sent to Dr. Richard C. Maclaurin, recently chosen as President of the Institute.—*A. G. Labbé* ('07), *Secretary, Front and 17th Streets, Portland, Ore.*

THE TECHNOLOGY CLUB OF PHILADELPHIA.—The first fall meeting of the Technology Club of Philadelphia was held at the City Club on Saturday evening, November 7. An informal beef-steak dinner was served. Thirty members were present, representing classes all the way from '75 to '08. Professor Gummere, of Drexel Institute, who was a member of the Technology expedition to the Aleutian Islands, was to have been the guest of the evening, but, owing to a death in his family, he was unable to be present. Several of the members gave short talks on subjects connected with their work, and a general discussion followed.

It was with deep regret that the club received the resignation of President Daniell. Owing to continued ill-health, Mr. Daniell has found it necessary to leave this section of the country. For several years Mr. Daniell has been very closely associated with all the activities of the club, and his loss will be severely felt. The present officers of the club are: president, Frank H. Keisker ('97); secretary-treasurer, Percy E. Tillson ('06), 419 Y. M. C. A. Building; executive committee, Clayton W. Pike ('89), Harry P. Codrington ('95), Fred A. Hunnewell ('97), Edgar P. Trask ('99), Lewis A. Miller ('01), H. Le Roy Walker ('05).—The second meeting of the season of the Technology Club of Philadelphia was a smoker held at the T Square Club on Saturday evening, December 12. Twenty-five members were present. Light refreshments, both liquid and solid, were served. Letters from the alumni headquarters and from the REVIEW concerning the approaching All-Technology Reunion were read, and the indications were that a large delegation from the Philadelphia Club would attend, as over half of the members who were present signified their intention of getting back to civilization on that occasion.

Mr. Ernest Harrah ('04), of the Midvale Steel Company, presented a very interesting and instructive paper on the manufacture of car and locomotive wheels. He explained the preparation of

the material, the construction, the merits and the defects of a large number of the wheels on the market. He covered the field in a very thorough manner, and brought out many interesting points concerning that branch of the steel industry.

The club will hold an informal dinner in the latter part of January, and after the dinner the annual business meeting and election of officers will take place.—*Percy E. Tillson, Secretary.*

TECHNOLOGY ASSOCIATION OF NORTHERN CALIFORNIA.—Our meetings for the next six months are as follows: January 6, social evening, San Francisco; February 3, stag theatre party, Van Ness Theatre, San Francisco; March 4, dinner at Mattias', San Francisco; April 6, ladies' theatre party, McDonough Theatre, Oakland; May 1, annual dinner and business meeting at St. Francis Hotel, San Francisco.

The list of the officers is as follows: Charles Gilman Hyde ('96), president; Howard Coburn Blake ('06), secretary-treasurer, Berkeley, Cal.; William E. Leland ('91), Ernest A. Hersam ('91), Oscar Charles Merrill ('05), executive committee.

At our last dinner, held at the Heidelberg Inn, San Francisco, on November 18, we were thirty strong, and spent a very enjoyable evening.

President Hyde spoke generally on Technology topics. The secretary read several letters from THE TECHNOLOGY REVIEW, the Alumni Association, Professor Noyes, and the Oregon and Southern California Associations. A telegram was sent our new president, assuring him of our hearty co-operation. One was also sent to our new association in Oregon, and one to Dean Burton, then at Portland, urging him to visit San Francisco. The evening closed with songs and short talks from different members. Mr. Marcus ('03), told of the Oregon Association, Mr. Adams ('78), followed with a story of the First Reunion in the West, Mr. Jones ('09), gave us a late word from the Institute which preceded a discussion of a Ladies' Night, during which discussion Messrs. Frazer ('05), Leland ('91), Pearse ('01), Ferry ('03), all told how necessary it was. The evening closed with a resolution of good will to Professor Maclaurin and short speeches by Messrs. Colmesnil and Reid.

The following week the executive committee met, and drew up a set of resolutions to our new president and planned the calendar for the coming six months. Each member will shortly receive a list of the membership, addresses, and a copy of the calendar of the association for the coming year.—*H. C. Blake, Secretary-treasurer.*

TECHNOLOGY CLUB OF SOUTHERN CALIFORNIA.—Under the date of December 5, W. T. Knowlton ('93), president of the club, writes from Los Angeles as follows: "We hold our annual meeting tonight of the Technology Club of Southern California on the top of Mount Wilson (as Tech men are aspiring to reach the summit), where Professor George E. Hale ('90) will entertain us at the hotel with a banquet, followed by a lecture, illustrated by stereopticon, on the largest telescope of the day, which we will examine at the Mount Wilson observatory. Professor Hale is in charge of this Carnegie station, and he has just got things in place. Leaving Los Angeles at noon, we go to Sierra Madre by electric, where we take animals and ride to the summit, a nine-mile trail. Some twenty-four fellows will make up the party, which will return the next day, and I think the trip will be one we shall remember with pleasure. The Technology Club of Southern California has a membership of between forty and fifty, and is growing fast. It includes several representatives of classes in the sixties, seventies, and eighties, so that it is not dependent upon the younger men alone for encouragement. The New England College Club was formed two weeks ago in Los Angeles, all the New England colleges except Harvard and Yale being on the list. Monthly luncheons will be held to promote acquaintance and to foster a college spirit. Upon the executive committee of this new club the Technology Club is represented by its president."

NORTH-WESTERN ASSOCIATION OF MASS. INST. TECH.—The present officers are: John L. Shortall, president, '87; Richard E. Schmidt, vice-president, '87; Ernest Woodyatt, secretary and treasurer, '97, 1615 Ashland Block, Chicago, Ill. The executive committee consists of above-named officers, together with Frederick K. Copeland, Dr. Mortimer Frank, Samuel D. Flood, and Edward M. Hagar.

It has been the custom of this association to hold an annual banquet during the latter part of February in each year, and it is now contemplated to hold such a banquet some time in February next, the exact date not yet being set, but will doubtless be soon agreed upon; and arrangements to make the banquet a success are now under way.

During the year informal suppers and meetings are held, at such times and for such purposes as the executive committee deems advisable. Since the last annual banquet there have been two informal suppers, one being held last June, at the South Shore Country Club,—beautifully located on Lake Michigan, just south of Jackson Park,—where the afternoon was spent in outdoor games, and supper was served in the club-house in the evening. It was a jolly affair and greatly enjoyed, about forty-two men being in attendance.

On Saturday evening, Nov. 28, 1908, there was an informal supper given, at the University Club in this city, at which the president, Mr. John L. Shortall, presided. He gave a full account of his recent visit to the Tech Union while in Boston, and described it and told what it was accomplishing for the students. Mr. Frederick K. Copeland spoke very interestingly, his subject being "The New President of the Massachusetts Institute of Technology." Mr. Theodore W. Robinson spoke with his usual candor and effectiveness, his subject being "The Duties of Alumni"; and several other good stirring addresses were made by various members of our association. The music was furnished by "Johnny" Hand's Orchestra of seven pieces, including the big bass drum. Old college songs were sung with great enthusiasm, and the meeting was a rousing success. At this meeting it was urged that our alumni out here subscribe for *THE TECHNOLOGY REVIEW* and *The Tech*. We believe that, if the officers of *The Tech* should make an effort to reach the alumni throughout the country, they would be able to interest them to the point of subscribing for that very excellent publication. *THE TECHNOLOGY REVIEW* seems to be making that effort.

It has been concluded that we shall not be able to arrange to have

the Glee Club come here this year, but possibly in another year such arrangements may be made.

Any former Tech student is eligible to membership in the Northwestern Association by making application to any of the officers of our association, and paying to the secretary-treasurer the annual dues of \$2 for resident membership and of \$1 for non-resident membership.

The officers of our association invite all Tech students to feel that they are welcome at our banquets and gatherings, and urge them to join our association, if they can conveniently attend our meetings, and to co-operate with us in keeping our directory up to date by furnishing us with their own names and addresses and the names and addresses of other Tech students who should be, but are not, members.—*E. Woodyatt, Secretary.*

TECHNOLOGY CLUB OF NEW BEDFORD.—Twenty-one Tech men, including Acting President Noyes, sat down to the annual dinner of the Technology Club of New Bedford at the Wamsutta Club on Friday evening, December 11. President S. C. Hathaway presided, and after a short talk by Charles F. Lawton on Present Needs of the Institute as Seen by an Old Graduate, President Noyes was introduced, and gave an interesting discourse on what was being done at Tech and on the new President. Charles R. Allen also gave a short talk on the new Industrial High School, of which he has just been elected master. The dinner was concluded with a rousing Tech yell.—*Charles F. Wing, Jr., Secretary.*

TECHNOLOGY CLUB OF CENTRAL PENNSYLVANIA.—The second annual dinner of the Technology Club of Central Pennsylvania was held on Saturday evening, December 12, in the assembly room of the Engineers' Club in Harrisburg, Pa.

Before the dinner a short business meeting was held, with Mr. L. E. Johnson ('89) in the chair. Nominations for the new president were then made, and Mr. Frank A. Robbins, Jr. ('02), was unanimously elected.

The following new members were then elected: Henry V. Spurr, Uldric Thompson, Jr., Harry S. Percival, Ralph E. Irwin.

At seven o'clock the meeting was adjourned to the dining-room, where the following men sat down to a "turkey dinner": George P. Vanier ('85), L. E. Johnson ('89), J. W. Campbell ('96), Stephen Badlam ('00), John R. Brownell ('01), E. L. Chapman ('01), Farley Gannett ('02), Paul Hooker ('02), Frank A. Robbins, Jr. ('02), Harry S. Percival ('05), R. V. McKay ('06), F. E. Langenheim ('07), Henry V. Spurr ('08), Ralph E. Irwin ('09), Uldric Thompson, Jr. ('09).

During the dinner several toasts were drunk to "Old M. I. T.," "the new President," "the Classes," and to "Mrs. King, God bless her!" After the dinner K. I. Grant ('02) joined the party, and the rest of the evening was spent with Tech songs, and ended with a rousing M. I. T. yell.—*Stephen Badlam, Secretary, Steelton, Pa.*

THE PITTSBURG ASSOCIATION OF THE MASS. INST. OF TECH.—Although the Pittsburg district has passed through a most severe financial ordeal during the past year, the Pittsburg Association has not suffered because of lack of interest, and is making preparations for a year of largely increased usefulness.

We are making arrangements for an informal smoker in January, and are looking forward to our annual dinner in February, when arrangements will be made for the Technology Reunion in June. The dinner will probably take place during the second week in February. During the course of the year there will be several informal meetings, and all Tech men of this vicinity are cordially invited to communicate with the secretary, so that notices may be sent.

The officers are: L. K. Yoder ('95), president; S. B. Ely ('92), vice-president; Waldso Turner ('05), secretary-treasurer, 1174 Frick Building Annex; W. I. Bickford ('01), and C. S. Robinson, ('84), executive committee.—*Waldso Turner, Secretary-treasurer.*

ALUMNI ASSOCIATION OF THE M. I. T.—On October 10 the nominating committee of the Association reported the following names for officers and for term members of the Corporation: for president, Edwin S. Webster ('88); vice-president, Frank E. Shep-

hard ('87); secretary, Walter Humphreys ('97); executive committee, William S. Johnson ('89), and Charles F. Park ('92); nominating committee, Harry W. Tyler ('84), Edward H. Huxley ('95), and Frederick H. Hunter ('02); committee on school, Linwood O. Towne ('78); trustee of the alumni fund and of the life membership fund, James P. Munroe ('82); advisory council on athletics, Frank H. Briggs ('81); for term members of the Corporation, Walter B. Snow ('82), Theodore W. Robinson ('84), Charles R. Richards ('85), Hollis French ('89), George C. Whipple ('89), James Swan ('91), William H. King, ('94), E. Laurence Hurd ('95).

Interesting Figures of Registration

The number of students this year is again larger than that of the previous year: it is 1462, a gain of more than fifty. The first-year class is larger, and there is a marked increase in the number of students from other colleges, both graduates and non-graduates. The per cent. of the new students who have studied elsewhere is twenty-nine. The students graduated from other colleges before entering the Institute represent ninety-one colleges or universities. While last year 20 per cent. of the students admitted on examination did not register, this year only 12.5 per cent. failed to enter.

All but two states and three territories of the Union send students to the Institute. The seventy-two foreign students come from thirty different countries. The largest representation from any one foreign country is ten students from China. Ten years ago there were but twenty-seven foreign students from thirteen countries. Only the north central group of states have fewer students than last year, as there is a gain in the numbers from the north Atlantic, the south Atlantic, the south central and the western states.

NEWS FROM THE DEPARTMENTS

Architectural Students Honored—Advances in the Physics,
Chemical and Electrical Engineering Departments

DEPARTMENT OF ARCHITECTURE.—Of the four men from the colleges of the country who qualified for the Roman prize in architecture of the American Academy, three are from the Institute of Technology. The other is from the University of Pennsylvania architectural department.

The three men are Edgar I. Williams, W. Frederic Dolke, Jr., and Cecil F. Baker. The successful candidate from Pennsylvania is Roy Childs Jones.

The Technology men are graduate students, Baker having taken his bachelor's degree in 1907 and the two others graduating last year. They will spend the rest of the present term in preparing their final plans, following the outline of the fourteen-hour sketch problem already handed in. The final plans are to be in color.

The schools of architecture represented in the competition are Harvard, Columbia, Massachusetts Institute of Technology, University of Pennsylvania, George Washington University (Washington, D.C.), Cornell, University of California, Washington University (St. Louis, Mo.), and the University of Illinois. Graduates of the School of Fine Arts in Paris were also eligible.

The American Academy in Rome was chartered by the State of New York in 1897. It maintains a course of study in Rome, sending students over from this country. Music, painting, sculpture and architecture are the subjects taken up. The latter department was started only two years ago. Last year this scholarship was awarded to a Technology man, Ernest Lewis.

Besides the scholarship at the academy each beneficiary is allowed \$1,000 each year for three years, and is also allowed travelling

expenses to and from the Italian capital. Eight months of each year are spent in study at Rome, and the remaining four are spent in an annual term of travel.

The Committee on Architecture which judged the competition was composed of William M. Kendall, S. Breck Trowbridge (chairman), Samuel Chester French, Edward H. Blashfield, and Frank Niles Day. The officers of the Academy Association are: president, Charles Follen McKim; vice-president, Theodore N. Ely; secretary, Francis D. Millet; director, George W. Beck.

The problem was a building for the academy in Rome, supposing a frontage of five hundred feet, an administration building and studios were called for.

DEPARTMENT OF PHYSICS.—Mr. Faxon, of the Department, has succeeded in so mounting the Kohl apparatus that the Cavendish experiment can be shown in the physical lecture-room under favorable conditions. In the apparatus used, a modification of that of Boys, attraction is exerted between two lead spheres each about four inches in diameter and two small silver spheres carried at the ends of an arm suspended by a quartz filament. A ray of light is reflected upon the screen from a mirror attached to the arm, and the motion of this ray when the filament is twisted by the mutual attraction of the masses is readily seen. The effective pull on each of the small spheres is only one five hundred millionth of a gram. The needed steadiness is secured by placing the movable system on a Julius suspension.

Many valuable acquisitions of physical apparatus have been received during the past few months.

Among these should be particularly mentioned the gift from Dr. William Rollins of a large Tolles microscope, a magnificent instrument, with objectives and accessories, and also of a powerful "Geryk" air-pump.

Of the general physical apparatus purchased, the following pieces are especially worthy of note:—

From Goetze, of Leipzig, a collection of spectrum tubes of new patterns for use in the laboratory and lectures, and also a considerable number of new Crookes tubes for the study of electrical

phenomena in high vacua. From Ernecke, of Berlin, a large Lecher apparatus for the demonstration of stationary electric waves; and a simple form of Wheatstone's wave apparatus for illustrating the mechanical combination of waves in rectangular planes. From Kohl, of Chemnitz, a Zamboni dry pile of 6,000 elements; a Schaik resonance top; a balanced double gyroscope; an electrical interrupter fork of variable pitch and a variable fork with resonator, driven by the same, which illustrate very beautifully the struggle between free and forced vibrations; a new battery of very large and stout Leyden jars. From the Zeiss Company, of Jena, a *verant*, which is a device for properly viewing a photograph so as to exhibit it to the eye under proper optical conditions of perspective. From Griffin & Sons, London, a Rutherford electroscope for use in connection with the study of radio-activity.

There has been constructed in the Department workshop a vibrating projecting oscillograph, devised by Professor Derr for class demonstration, which operates in a very satisfactory manner, and also a reflectoscope for use with the lanterns habitually employed in the lecture-room.

A considerable additional number of astronomical slides taken from negatives made at the Yerkes Observatory has been purchased, and our large collection of color photographs has been increased by about forty lantern slides made by Professor Derr and presented by him to the Department, which illustrate the new Lumière and other processes. Besides pictures of ordinary objects these include micro-photographs in color, polarized light effects, and also some slides showing the limitations of various processes.

The Department has recently purchased from the income of the Katharine Bigelow Lowell bequest a very fine crystal reflectometer from the Zeiss Optical Company. This instrument not only permits of the accurate determination of the index of refraction of small crystals, but is so constructed that the index may be determined in any direction through the crystal, and thus the wave forms in doubly refracting crystals ascertained. The instrument is intended primarily for the instruction of students particularly interested in crystallography and for research work.

In the Laboratory of Applied Electrochemistry it has been found necessary to increase the equipment of high temperature measuring instruments, as practically all experiments in electric furnace processes, as now arranged, call for a record of the temperature attained. The latest acquirement for this purpose is a Féry radiation pyrometer, which with a Wanner optical pyrometer and a number of thermoelectric pyrometers provides all the instruments needed at present. A new furnace designed for the production of carbides has been imported, and a Sturtevant crusher for preparing furnace charges.

To maintain the equipment for experimental work in chemical physics at the highest standard, the latest forms of Beckmann boiling and freezing point apparatus have been imported, as well as apparatus for the measurement of dielectric and critical constants.

An apparatus for making continuous records of temperatures has been installed in the Laboratory of Heat Measurements. This is a recording resistance pyrometer made by the Cambridge (England) Scientific Instrument Company, and is capable of recording temperatures from 200° up to $1,000^{\circ}$ Centigrade, making a permanent ink record upon cross-section paper. It is especially adapted for a record of temperatures in operations in which it is desired to keep track hourly or daily of changes in temperature, and is also available for the recording of melting points, boiling points, and recalescence points, the results being more accurate and much easier to obtain than by the older method of individual readings with subsequent plottings. The instrument operates in virtue of the change in electrical resistance of platinum wire with change in temperature,—a principle whose development in the construction of pyrometers has been largely due to Callender and Griffiths. It is a gift to the laboratory from Professor Norton.

CHEMISTRY AND CHEMICAL ENGINEERING.—The Department has again outgrown its quarters, and has been obliged to convert the remaining portion of Room 26, Walker, the room at the front of the second floor, into a laboratory for analytical chemistry, connected with the larger laboratory for the same purpose on that floor, which is under the immediate charge of Dr. Thorp.

This change became necessary in order to accommodate the students in analytical and organic chemistry. A considerable portion of the analytical laboratory on the top floor of the Walker Building is now used for organic laboratory work.

The newly organized Research Laboratory of Applied Chemistry is gaining headway. Dr. Wilhelm Guertler, former assistant to Professor Tammann at Göttingen, and Dr. W. K. Lewis (Course X., '05), who returned last summer from Breslau, are devoting their entire time to the research work, while Dr. Burns and Mr. A. T. Hinckley (Course V., '08), devote themselves in part to instruction and in part to research work. Dr. Walker, as director, holds weekly conferences and seminars, which are also attended by other members of the Department, and are proving helpful and interesting.

The equipment of the Industrial Laboratory has been increased by the addition of a down-draft melting furnace, made by the American Gas Furnace Company, which will make possible the undertaking of several new lines of thesis work, and will also prove serviceable in connection with the work of the Research Laboratory.

The Chemical Society of the Institute, the membership of which is made up of students in the second, third, and fourth years of the Courses V., VIII., option 3, and X., holds monthly meetings during the Institute year, except in January. The speakers this year have been Professor Talbot, on chemistry as a profession; Professor Woodman, on the pure food laws and their enforcement; and Professor Jennings, of Worcester Polytechnic Institute, on alchemy, past and present. In addition to these gatherings, which are properly controlled by the officers of the society with such assistance from the Department as may be desired, Professor Talbot has asked a few men who are active in pure or applied chemistry to speak to the students on topics of special interest to them. These gatherings are held after the close of the regular exercises in the afternoon. Dr. Bertram B. Boltwood, of Yale University, gave such a talk on Recent Developments in Radioactivity, on the 17th of December. Mr. M. C. Whitaker, of the Welsbach Com-

pany, has promised to give a series of talks later in the year, and an effort is being made to secure other speakers.

Dr. Thorp is giving a series of lectures on Industrial Chemistry in connection with the Lowell Teachers' School of Science. This course was arranged for through the efforts of the New England Association of Chemistry Teachers, and is especially adapted to their needs.

Dr. Sherrill has not yet been able to resume his work at the Institute, but it is a pleasure to report excellent progress toward recovery of his strength, and it is expected that he will soon be able to resume active service. Professor G. N. Lewis is conducting the class-room exercises in Theoretical Chemistry, which were in Dr. Sherrill's charge, and Mr. R. C. Tolman is taking care of the laboratory work.

The Department should be well represented at the winter meeting at Baltimore of the American Association for the Advancement of Science and the American Chemical Society. Professor Lewis is Chairman of the Section of Physical Chemistry of the American Chemical Society, and will give an address on "The Use and Abuse of the Ionic Theory." Professor Talbot is chairman of the Section on the Education of Chemists, and, as retiring chairman of Section C of the Association, will give a short address on "Science Teaching as a Career." Dr. Lewis is also president of the North-eastern Section of the Chemical Society, having its headquarters in Boston. Dr. Walker has a prominent part in the Council of the recently formed Division of Industrial Chemistry and Chemical Engineers of the Chemical Society, of which Mr. A. D. Little is chairman. Drs. Noyes, Walker and Talbot are members of the Council of the Society, and the names of the following Institute men, including former students, are found on the preliminary list of papers: Professors Walker and Moore, and Messrs. Skinner, Olmsted, Arsem, Woodbridge, Washburn, Lind, Walton, Kraus, Bray, Mackay, and Mailey.

A part of the summer was spent by Mr. John A. Christie, of the third year of Course V., at the works of Harrison Brothers & Company, in continuance of the series of summer courses which they

have offered for several years past. At the request of the company for an additional nomination of a second-year student to begin the course, Mr. G. P. Lunt, of Course X., was recommended by the Department, and he also spent a profitable season at Philadelphia.

Mr. Rolfe has been granted leave of absence for the remainder of the year to undertake the direction of the working up of the sugar crop at Aguirre, Porto Rico. He takes with him Mr. C. L. Lufkin (V., '08).

Professor Talbot has recently sent out a considerable number of letters to graduates and former students who were not associated with the American Chemical Society, in an effort to interest them in its work, and in connection with this letter a request was made for some personal word regarding themselves. A considerable number of responses have been received to this latter request, and the interest shown in the welfare of the Department, the warm personal greetings to its members, and the sketches of experiences since the closer associations necessarily ceased have been a source of much gratification to us all.

ELECTRICAL ENGINEERING DEPARTMENT.—The first of the Electrical Engineering Society dinners for the present Institute year, in the series which has been heretofore described in *THE TECHNOLOGY REVIEW*, was held on the evening of Thursday, December 10, in the new Union. A very pleasant evening was passed with dining and singing and cheers. Mr. Louis A. Ferguson, Technology '88, and now president of the American Institute of Electrical Engineers, spoke to the students upon the subject of their ambitions and the way to direct their education. His speech was heartily applauded and cheered. The Technology cheer for Mr. Ferguson stirred him to give the cheer of the Electrical Engineering Society of his day in the Institute, and the evening ended in great enthusiasm. Mr. Ferguson, who is now vice-president of the Commonwealth Edison Company of Chicago, is one of the notable class of 1888 which turned out many well-known electrical engineers, including, besides Mr. Ferguson, Charles A. Stone, Edwin S. Webster, and Russell Robb of Stone & Webster, and others.

A notably large number of young men studying electrical engineering at the Institute of Technology come from among the graduate students or students who have entered with advanced standing. Many of these students have pursued a course in arts or a course in general science elsewhere, and are spending two or three years in completing the electrical engineering course at the Institute of Technology; others have graduated from other engineering schools, and are spending one or two years in study at the Institute to get its baccalaureate degree; and several of particularly high preparation are pursuing advanced study and research for the purpose of obtaining the higher degrees of Master of Science in electrical engineering or Doctor of Engineering.

It is probable that the latter students, who are occupied in advanced study and research, are enjoying the first regularly organized work in this country leading to the degree of Doctor of Engineering. That degree has heretofore been conferred by American engineering schools as an honorary distinction, but it has not in this country been used among the degrees to be secured by study and research in the schools. Brilliant work has been done by students studying for this degree in the great polytechnic schools at Berlin and Carlsruhe, Germany, and it is hoped that work of this nature in the Electrical Engineering Department of the Institute will become popular with electrical students of the highest ability and that it may become influential in stimulating a larger spirit of engineering research.

The undergraduate electrical engineering course has a senior class about 20 per cent. larger this year than last year, and the Department will soon be a candidate for larger quarters. The laboratory quarters of the Department are large, and they are impressive in their equipment, but even they are becoming overcrowded, and additional class-rooms are much needed. One of the sore needs of the Department is to have one or two class-rooms which are assigned solely to its use, so that problem sections and quiz sections may be made up at the convenience of students and instructors for the purpose of more distinctly vitalizing the problem instruction and allied instruction. At the present time the Department does

not have a single class-room which is assigned to its own use, and the convenience and effectiveness of its teaching must therefore be subordinated to the schedule of class hours in which class-rooms may be available.

MINING DEPARTMENT.—We have put in a Callow settling tank for clarifying the water used in our concentrating work. We have a new compressor to give us compressed air for various purposes, running rock drills or combustion. We have a new soft coal muffle furnace for doing the lead assay in the crucible after the manner adopted in many western plants. We have a new sample crusher and a new disc grinder for grinding samples. We have a new arrangement of flues to give greater efficiency to our reverberatory furnaces. We have ordered new triplex rolls from Denver for fine crushing. We have received a Pierce amalgamator, which is one of the latest and best amalgamating devices. We have the Hendryx agitating tank for cyanide and the agitating tank for dissolving copper, both of which are in the front rank of modern improvements.

DEPARTMENT OF ENGLISH.—In a freshman class smaller and more capable than the average, Professor Pearson is carrying out a novel exercise in writing English,—a newspaper, the *Freshman Enterprise*, issued once a week, edited and entirely written by members of the class, and distributed to them in neostyled copies. For each issue three students are appointed editors. Every other student has to hand in at least four hundred words, either of news items or editorial matter, or a letter to the editors. From this matter, pseudonymously presented, the editorial board selects material, about fifteen hundred words in volume, which it arranges in the form of a newspaper. Each issue is, after distribution, criticised in class.

The issues were at first deficient chiefly in news paragraphs, but the material of this sort was later more developed; and in the last number appeared an article on the Prize Drill expressing the ideas of Major Wheeler, who was especially interviewed for the purpose by an *Enterprise* reporter. Similarly, interesting items were gleaned from the December Bulletin, upon statistics of regis-

tration. Expressions of opinion, both in editorial form and in correspondence, were numerous and varied, including protest about inadequate lockers, criticism of depraved commercialism in that "esteemed contemporary," *The Tech*, appeals for a 'varsity baseball team and a Tech orchestra.

As an exercise in English writing, the paper is interesting because it concerns a wide variety of subjects, in all of which students should be naturally and vitally interested. Such a publication, too, provides for the writer a very definite audience, to which he has to adjust his material with tact and effectiveness. Further, each student submits his writing to the judgment not of an academic superior, but of his equals, and his material, as well as their judgment in selection, is subsequently discussed by the body of readers whom especially it was intended to inform and persuade.

CHRISTMAS FESTIVITIES AT THE UNION

The social hall of the Tech Union was a brilliant spectacle on Christmas Eve when Dr. Noyes, the Acting President, gave a reception to the students who remained in Boston during the Christmas vacation. The room was trimmed with Christmas greens, and a handsomely decorated Christmas tree was provided. Professor Arlo Bates rendered Dickens's own shortened reading of "The Christmas Carol," and the Yule log was brought in by four sturdy undergraduates and placed in the great fireplace, while the Tech quartette sang Robert Herrick's "Song for the Yule Log." After the presentation of the gifts the quartette appeared, bearing on their shoulders an enormous wassail bowl, filled to the brim, chanting the "Wassail Song," which is taken from "Kynge Johan," 1550, the oldest wassail song known. The Tech orchestra and Glee Club furnished music. There were about two hundred present.

WHAT THE INCOME FUND IS DOING

The appropriations from the Income Fund by the Executive Committee of the Corporation during the year ending Sept. 30, 1908, are given below:—

For one-half the cost of erecting and equipping the new Technology Union	\$8,500
For installing new boilers and improving the heating and power plant	9,750
For fittings and installation of the new steam turbine	2,690
For steel testing machine for Mechanical Engineering Laboratory,	500
For equipment of the extension of the Laboratory of Analytical Chemistry	650
For maintenance and improvement of athletic field	1,600
For providing for personal conferences between first-year students and instructors	1,600
For increase of salaries of the instructing staff	16,600
Total	\$41,890

The power plant referred to is said to be the best-arranged plant in New England. Those familiar with the old plant, or rather plants, will welcome this needed improvement. Donors to the Income Fund who have any close knowledge of the grand work that the new Union is doing for the students will be gratified to know that without this gift the Union could not, in all probability, have been built at this time.

On March 20, 1908, President Noyes delivered to the instructing staff a talk on Teaching which, by reason of its comprehensive statement of the ideals of instruction of a scientific school, is a contribution not only of permanent value to teachers, but of general interest to Technology alumni. It was published in *Science* November 13.

PROFESSORS' SALARIES

The last bulletin of the Carnegie Foundation for the Advancement of Teaching is devoted to a very interesting discussion of the financial status of the professor in America and in Germany. A table is given of 103 institutions which spend more than \$45,000 per year for salaries to the instructing staff,—such a list naturally including the principal colleges and universities of the country. The order of the institutions in the scale of total salaries is: Columbia, \$1,100,000; Harvard, \$842,000; Chicago, \$699,000; and so on,—the Institute coming fourteenth in the list with \$301,000, between Princeton with \$309,000 and Minnesota with \$263,000. Of the thirteen institutions which precede the Institute, all but Princeton have a considerably larger number of students. No one of these thirteen institutions has so large a proportion of teachers to undergraduate students,—more than one to seven,—while in the whole table of 103 colleges and universities this proportion is exceeded only by McGill, Johns Hopkins, Clark, Temple, and Haverford. If for the fourteen institutions we divide the total appropriation for salaries by the number of undergraduate students, Columbia University spends for salaries \$280 per student; Princeton, \$235; Stanford, \$220; the Institute, \$215; Harvard, \$210, etc.

The average salary of a professor at the Institute is not quite \$3,200: the average age of reaching that grade is thirty-eight. The average salaries for other faculty grades are: associate professor, \$2,100; assistant professor, \$1,650. The average salary of the full professor at the College of the City of New York is nearly \$4,800; at Harvard, \$4,400; at Columbia, \$4,300; at Stanford, \$4,000; at Chicago and Toronto, \$3,600; at Yale, Pennsylvania, and New York, \$3,500; at Haverford, \$3,400; at Rensselaer, California, and Northwestern, \$3,300; at Stevens and Johns Hopkins, \$3,200. Fifteen institutions announce maximum salaries of from \$4,500 upward, the Institute being classed with those for which the maximum is between \$3,500 and \$4,500.

NEW YORK CLUB-HOUSE LIKELY

In November a carefully compiled prospectus of a proposed joint club-house for alumni of Technology, Amherst, Brown, Dartmouth, Wesleyan, and Williams, was issued by the joint committee of which Allston Sargent (Tech '98) is chairman. The plan, briefly, is to form a "College Clubs' Building Company" to take title to and operate a suitable building purchased with the approval of the joint building committee. The company is to obtain \$72,000 cash in hand to start operations, from subscriptions to ten year bonds issued in denominations of \$100 and of \$50, the alumni of each college to subscribe \$12,000. The bonds are to be secured by mortgage on the property. Each club would have the use of the general rooms and conveniences and exclusive use of club-rooms by rental for ten years, guaranteeing to the company at least \$4,000 per annum. The building would contain, not less than sixty bedrooms, some for transients at \$2 per day, and the others single bedrooms at \$20 to \$40 per month and double bedrooms \$40 to \$50. Dues of resident members would be \$20; junior members graduating within four years, \$12; and non-resident members, \$10. Subscriptions to the bonds are now being received by the college committees, to be cancelled if no building is purchased before May 1, 1909. The finances have been accurately estimated, and the plan affords a present opportunity to secure for the alumni of each college a modern club-house. This result depends only upon prompt subscriptions to bonds and the support of alumni through membership in their respective clubs. Success seems assured.

As a stimulus to track athletics, two cups have been offered, one by Dr. J. Arnold Rockwell ('96), for the quarter-mile event, and the other by John L. Batchelder, Jr. ('90), for the mile run. These cups become the property of the winners, cups being offered each year by the donors.

COMPARATIVE GEOGRAPHICAL STATISTICS

Science for October 30 contains a tabulation of the students attending twenty universities and colleges, and two technological schools, with reference to their geographical antecedents. It is interesting to observe that for Massachusetts students Harvard stands first, the Institute second, Dartmouth third. For foreign students from other parts of North America, Harvard leads with 60, followed by Columbia with 59, Pennsylvania with 58, Cornell with 37, Michigan with 31, the Institute with 28. Among South Americans the Institute with 10 is exceeded by Pennsylvania with 37, Cornell with 32, Columbia and Ohio with 11 each. Of Europeans we have, like Yale, 17, Pennsylvania leads with 50, followed by Columbia with 48, Harvard with 28, and Cornell with 19. Asia is represented by 53 students at Columbia, 51 at Cornell, 42 at Yale, 40 at Harvard, 36 at California, 25 at Pennsylvania, 18 at Illinois, 17 at Ohio, 16 at Wisconsin, 15 at the Institute. From Africa there are 7 at the Institute, 4 at Harvard, 2 at Yale, 1 in each of four other institutions. Of the Australasians a great majority—45—attend the University of Pennsylvania: of the others, numbering only 20 in all, 3 are at the Institute. Our total number from foreign countries—80—is exceeded by Pennsylvania with 216, Columbia with 173, Cornell with 143, Harvard with 142, and Yale with 89.

The recent growth of the great state universities seems not to have prevented a gradual increase of western students at the eastern colleges. It is interesting to note that the percentages of students from the home state are in particular cases as follows:—

California	93	Columbia	62
Illinois	83	Cornell	54
Michigan	53	Harvard	52
Missouri	83	Pennsylvania	67
Ohio	91	M. I. T.	55
Wisconsin	81		

in which the general disparity between the eastern and the western institutions is marked.

H. W. T.

GENERAL INSTITUTE NEWS

A New Technology—Dr. Noyes's Strong Plea for Greater Things—Dr. Maclaurin's Visit

PRESIDENT'S ANNUAL REPORT.—At the stated meeting of the Corporation of the Massachusetts Institute of Technology, held December 9, Dr. Arthur A. Noyes, the Acting President, made his annual report. Dr. Noyes's report is, in part, as follows:—

“The large increase in the registration figures naturally raises the question whether a limitation should be placed upon the number of our students. My own opinion is that it should be the permanent policy of the Institute to receive and provide for all those capable and well-prepared students who desire to avail themselves of the opportunities it offers. It is not justifiable to raise the standard to the point of demanding extraordinary scholarly attainments, since other qualities than scholarship take an important part in determining the success of a professional or scientific career. The Faculty and staff of instruction must therefore face resolutely the problem of teaching large classes effectively; administrative officers must see that the character and organization of the staff is such as is adapted to this end; and the Corporation and alumni must aim to secure the resources which will provide sufficient facilities in the way of class-rooms, laboratories, and equipment, and will make possible the payment of adequate salaries, such as will retain sufficient teachers.

“This last factor—the financial resources of the institution—is, however, the crucial one. But until additional accommodations can be provided, and until increased funds for this purpose and for current expenses have been secured, it would be a serious mistake to permit the number of students to increase much beyond the present registration.

“From the standpoint of our general system of instruction the

two most important developments of the past year have been the much fuller provision made for advanced courses of study to the higher degrees of master of science, doctor of philosophy, and doctor of engineering, and the more definite organization of five-year undergraduate courses leading to the bachelor's degree. These latter are of three types. In one the student supplements the required four-year courses with the equivalent of an extra year's study in academic and scientific lines. In a second provision is made for those students who wish to secure a training in two allied branches of study, such as electrical and mechanical engineering. The third provides for the distribution of the work of the last three years of the regular four-year course over a period of four years, affording an opportunity for the devotion of a greater amount of time to outside study or practice.

"I must not fail to emphasize the seriously crowded condition of our present quarters, even though it is a time-worn topic of college presidents.

"The situation is one that requires radical treatment, for conditions throughout the whole Institute are cramped for lack of proper room in which to develop.

"It should be realized that we are now facing the logical results of a changing plan of development, which has made it imperative that the whole Institute be rebuilt upon a permanent basis, and upon a new site, better adapted to its needs.

"Though no definite action in this direction has been taken by the body of the Corporation or by the committee on the site which you have appointed, yet I believe that during the past year, through informal discussion and individual consideration of the matter, there has grown up not only among your own members, but among the other groups connected with the Institute,—the Faculty, alumni, and student body,—a sentiment so strong that it will be satisfied with nothing less than the creation of a new Institute on a new site.

"Although the physical condition of the Institute is, as I have indicated, one that makes impossible further growth or a development of its work in new directions, and one that does in some

measure impair the efficiency of our present instruction, I should be sorry to give you the impression that the latter effect is of a very serious character. Equipment for lecture and laboratory work is another physical factor of at least equal significance, and on this side the Institute, taken as a whole, is extraordinarily well provided for.

“Through the opening of the new Technology Union in the building erected on Trinity Place during the past summer, a most important step has been taken in the development of the social life of our students. The new Union was made possible mainly through the interest and efforts of the Committee on the Welfare of Students appointed by the Corporation last March, and through the generous donations of individual members of this body, which provided for a large part of the expense involved.

“The control of the Union has been placed in charge of a committee of nine members, of whom a majority are undergraduate students elected by the Institute Committee. There have also been elected by the students three sub-committees to take charge of different sides of the Union’s activities.

“The admirable spirit of our students, manifested not only in connection with this Union, but in many other ways, is, I believe, one which can be matched at few, if any other colleges.

“The relations of the Institute to the secondary schools deserve constant attention. Owing to the fact that by far the larger number of teachers in the high schools have received an academic rather than a scientific training, owing to the undue development in this section of the country of the sentiment that a more effective education is secured under the collegiate plan than under that followed by even the best scientific schools, and owing to the failure to appreciate that the social and physical sides of student life are developed at the Institute upon a sounder basis and in better-proportioned measure than at most of the colleges, the advantages of our system of education and the opportunities afforded by the scientific professions in general are not sufficiently understood by boys in the preparatory schools nor by their teachers and parents. There is, therefore, a need in this community of better informing the public

in regard to this matter, not so much because the interests of the Institute are involved as because it is important that both types of educational effort be duly appreciated.

"There are also important relations to be maintained with the general public. The public should be kept informed, through the press and otherwise, of the activities of the Institute; and all those industrial, commercial, and transportation interests should be made to feel that the Institute stands ready to place at their service its staff and its laboratory facilities.

"With the state the Institute naturally stands in intimate relations. Without sacrificing its national scope or its own independence, it should constantly strive to serve the state in every possible way,—in the development of its natural resources, the improvement of its industrial processes and its transportation facilities, and especially in the solution of its educational problems. In closing this report, I would emphasize, as the watchwords of our future progress, the ideas of co-operation and closer relationships. If there be also shown an implicit confidence in the soundness of our educational system and in its support by the community, its proper growth and development will be assured."

HONORARY DEGREES.—The degree of Doctor of Laws has been conferred upon Professor Robert H. Richards by the University of Missouri in recognition of the distinguished services rendered by him in promoting the science and practice of mining engineering. A similar honor was conferred upon Professor George F. Swain a little more than a year ago by the University of New York, in recognition of his expert knowledge and high accomplishment in the field of civil engineering.

CHANGES IN THE FACULTY.—Eight instructors, whose successful work has won recognition, have been promoted to assistant professorships. These newly appointed members are: Charles W. Berry, Assistant Professor of Mechanical Drawing; Arthur A. Blanchard, Assistant Professor of Inorganic Chemistry; Harry C. Bradley, Assistant Professor of Drawing and Descriptive Geometry; Harrison W. Hayward, Assistant Professor of Applied Mechanics; Ervin

Kenison, Assistant Professor of Drawing and Descriptive Geometry; Joseph C. Riley, Assistant Professor of Mechanical Engineering; Hervey W. Shimer, Assistant Professor of Palæontology; and Alpheus G. Woodman, Assistant Professor of Food Analysis. Dr. Gilbert N. Lewis, who during the past year has acted as Director of the Research Laboratory of Physical Chemistry, has been advanced to the grade of Associate Professor of Physico-chemical Research.

ELECTION OF PRESIDENT MACLAURIN.—At a meeting of the Executive Committee of the Corporation of the Institute of Technology, held November 11, Professor Richard Cockburn Maclaurin, professor of mathematical physics at Columbia University, was elected President, and on November 23, at a meeting of the Corporation, this election was formally confirmed.

THE DEAN'S VISIT TO THE PACIFIC COAST.—Dean Burton was one of the invited guests at a convocation at Whitman College, Walla Walla, Wash., to found a high-grade technical school in connection with the college. The Dean was received with great enthusiasm by the former students of the Institute, who met him there. In Portland he was banquetted at the Commercial Club by twelve former Institute men who at that time formed the Technology Club of Oregon. At Seattle he was greeted by a dozen more Tech men, who formed the Technology Club of Puget Sound at the dinner given to Professor Burton. The whole spirit of the men in the West is one of enthusiasm and optimism for the Institute. Plans have already been made to send a delegation from both of these clubs to the Second Technology Reunion next June.

PRESIDENT-ELECT MACLAURIN VISITS BOSTON.—Professor Maclaurin addressed a convocation of students in Huntington Hall on December 15, at four o'clock. Every square inch of the hall was occupied, and the President-elect was greeted with the heartiest enthusiasm.

In the evening Dr. Maclaurin was entertained at dinner by the Corporation and Faculty at the new Tech Union. In a pleasant

informal address Dr. Maclaurin dwelt particularly on the status of the Faculty in such an institution and on the necessity of making membership in it attractive by responsibility and opportunity rather than by any merely financial rewards. He referred with high appreciation to the ideals and to the difficulties overcome by President Rogers and his associates, and paid a cordial tribute to the work of Dr. Noyes as Acting President.

Addresses were also made by President Noyes, Mr. Wigglesworth for the Corporation, Dean Burton for the Faculty, and Mr. W. B. Snow for the Alumni Association.

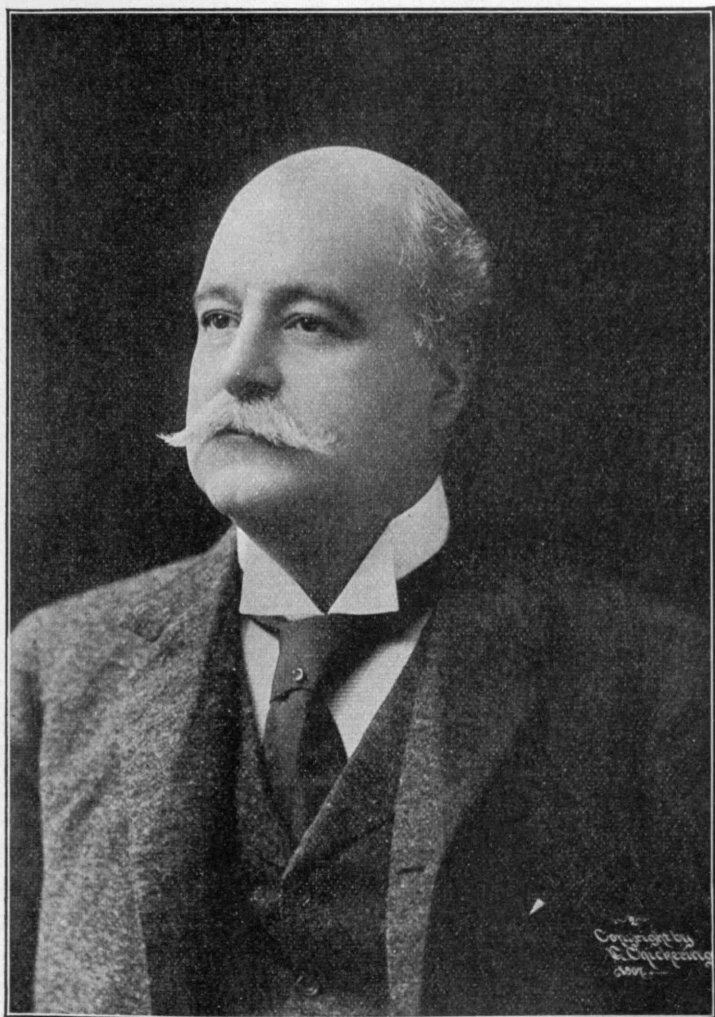
A PROPHECY THAT IS BEING FULFILLED

To those who are close observers of the Institute, who know its work, its spirit, and the character and loyalty of the Faculty, not less devoted because of an increasing proportion of younger blood, the outlook for the future is more than encouraging. They can see coming out of the recent discussion of the Institute's status and affairs a definite tendency toward unity of effort from a quarter where its support has not been counted on,—the alumni,—and no uncertain indication from the Corporation that this co-operation is most welcome.

The older alumni are beginning to realize that the Institute is not the same as it was when they were students, but that it is as surely in the lead to-day, when educational competition is most acute, as it was years ago. All this has developed a sense of personal responsibility that is bringing forth fruit, meet for repentance. We do not refer especially to the Technology Fund: that is an incident,—a creditable incident. The real benefit is coming from the work and suggestions of individuals, taken up by an Alumni Association, now effectively organized and forming a harmonious trinity with the Faculty and Corporation. We have been passing through a most trying period of stress, only to find ourselves stronger and better and united in one common purpose,—the glory of the Institute of Technology.—M. I. T. ALUMNI BULLETIN, May, 1907.

TECH MEN IN THE PUBLIC EYE

EBEN S. DRAPER ('78) was elected Governor of the Commonwealth of Massachusetts by a large majority. Eben Sumner Draper was born in the town of Milford, Worcester County, Mass., June 17, 1858, son of George and Hannah (Thwing) Draper, grandson of Ira and Abigail (Richards) Draper, great-grandson of Major Abijah Draper, of Dedham, who fought in the American Army during the Revolutionary War, and a descendant of James and Miriam (Stansfield) Draper, who came from Yorkshire, England, to Roxbury, Massachusetts Bay, in 1647. The Drapers were manufacturers and inventors of weaving and spinning machinery both in England and New England. Governor-elect Draper attended the public schools in his native town, and later spent some time at the Allen School, West Newton. He then completed a course in the department of engineering at the Massachusetts Institute of Technology, after which he began work in the Hopedale machine shops, where he was trained in the various details of the business. Later he entered several cotton mills in Lowell, Manchester and other cities in New England. The knowledge thus acquired through three years of practical work was preliminary to his becoming selling agent for the various Hopedale concerns in introducing mill machinery. On attaining his majority, he became a member of the firm of George Draper & Sons, and on the organization of the Draper Company, in 1896, he was elected selling agent. Mr. Draper is a member of the Corporation of the Massachusetts Institute of Technology and a member of the Board of Managers of the Milford Hospital, which Mrs. Draper and he presented to the town of Milford. He is a member of the Board of Trustees of the Peter Bent Brigham Hospital, and vice-president of the American Unitarian Association. With his brother, Mr. George A. Draper, he built a very fine stone Unitarian church in Hopedale as a memorial to their father and mother. Mr. Draper



EBEN S. DRAPER, '78
Governor of the Commonwealth of Massachusetts

was a member of the Massachusetts militia for three years, and on the outbreak of the Spanish War he was made president of the Massachusetts Volunteer Aid Association by Governor Wolcott. This association purchased and equipped the hospital ship "Bay State" at an expense of \$200,000, also raising \$200,000 more for the care of the Massachusetts soldiers and sailors. He was also chairman of the Massachusetts Association for the Relief of California. In 1905 the Republican State Convention unanimously nominated him for lieutenant-governor of the Commonwealth, and he was elected and inaugurated January, 1906. Since that time he has been re-elected as lieutenant-governor, serving in that capacity for three years. Up to 1905 he had never held a political office. He had served his party as a member of the Milford and Hopedale Republican Town Committees. He was also chairman of his Senatorial District Committee, and a member of the Congressional District Committee. He was also chairman of the Republican State Committee in 1892, but declined a unanimous re-election in 1893, although he served as a member of the committee the three following years. He served as president of the Republican Club of Massachusetts for two years, and has been a member of the club since its organization. In 1896 he went as a delegate from Massachusetts to the Republican National Convention at St. Louis, and was made chairman of the Massachusetts delegation. He canvassed all the delegates to that convention on the question of making the platform for "gold," and he secured, through fifty sub-committees working under his direction, a report showing the standing of every delegation in the convention on that measure. In 1900 he was Republican elector for the Eleventh Congressional District of Massachusetts. He was chairman of the Massachusetts delegation to the Nashville Exposition in 1897. Mr. Draper is interested in numerous cotton manufacturing and other industries throughout the country. He is a member of the Society of Colonial Wars, Union Club, Exchange Club, Country Club, Somerset Club, Algonquin Club, Technology Club. Previous to his nomination for governor, he was a director in the Boston & Albany Railroad, New England Cotton Yarn Company, National

Shawmut Bank and Old Colony Trust Company. He married, Nov. 21, 1883, Nannie Bristow, daughter of the late General Benjamin Helm Bristow, of New York, who was Secretary of the Treasury under Grant and candidate for the presidency in 1876. They have three children: Benjamin Helm Bristow, born Feb. 28, 1885; Dorothy, born Nov. 22, 1890; and Eben S., Jr., born Aug. 30, 1893.

JOHN R. FREEMAN ('76) and Mr. F. P. Stearns, of Boston, have been retained as consulting engineers to the Baltimore Water Board in connection with the works to be constructed under a five-million-dollar loan recently authorized.

CECIL H. PEABODY ('77) was re-elected a member of the Council of the Society of Shipbuilding and Naval Architecture at the November meeting in New York.

ARTHUR A. NOYES ('86) at a recent meeting of the National Academy of Sciences at Baltimore, was made a member of the committee appointed by act of Congress to "take into consideration the methods and expenses of conducting all surveys of a scientific character, and all chemical testing and experimental laboratories, and to report to Congress a plan for consolidating the chemical testing and experimental laboratories, so as to effectively prevent duplication of work and reduce expenditure without detriment to the public service."

JAMES P. MUNROE ('82) has been made chairman of the Massachusetts Commission for the Blind, and Walter B. Snow ('82) has been appointed a member of the commission by Governor Guild.

C. HOWARD WALKER ('01) was recently made president of the Metropolitan Improvement League of Boston.

A. LAWRENCE ROTCH ('84), at the Dublin meeting of the British Association for the Advancement of Science, September 2-9, discussed before the Physical Section the warm stratum in the upper air. At the jubilee meeting of the German Meteorological Society, which was held at Hamburg September 28-30, Professor Rotch read a paper entitled "Die warme Schicht der Atmosphäre oberhalb 13 Km. in Amerika."

EDWARD ROBINSON ('90) has been delegated by the University of Vermont, where he is professor of mechanical engineering, to spend a year visiting universities in this country and abroad, to note what they are doing along mechanical and engineering lines.

C. J. H. WOODBURY ('73) was given the degree of Doctor of Science at the last commencement of Dartmouth College. Dr. Woodbury received the same degree in 1906 from Union College, New York.

B. R. RICKARDS ('99), who has been director of the bacteriological laboratory of the Boston Health Department, has been secured by the Ohio State Board of Health as director of the bacteriological laboratory, and also to take charge of the laboratory devoted to the chemical analysis of water and sewage. Dr. Rickards will be located at Columbus, Ohio.

WILLIAM C. CLARKE, Jr. ('00), has recently been elected general manager of the Sea View Railway Company of Providence, R.I.

MATTHEW C. BRUSH ('01), general manager of the Newton (Mass.) Street Railway system, is president of the New England Street Railway Club.

E. H. DAVIS ('00) has been appointed registrar of Purdue University. Mr. Davis was graduated from the Institute of Technology, and was afterwards a student of political science in Columbia University. He joined the Purdue faculty in 1902 as instructor in political economy.

JOHN I. SOLOMON ('93) has made a notable invention which will probably result in the preservation of the pearl oyster fisheries, now becoming rapidly extinct, owing to the ruthless destruction of the pearl oyster under modern methods of compressed-air diving. At present 90 per cent. of the pearl oysters gathered and killed are found to contain no pearls, and of the remainder only a few have pearls of market value. Solomon has invented a process by which these oysters, while still alive, are examined by means of the X-ray. Those containing no pearls are thrown back into the sea in the hope that they may either become inoculated with the pearl-inducing cestode or that at least they will propagate their kind and maintain

the number of oysters growing on the banks. Of the small number of oysters containing pearls, those only are killed which contain the larger pearls, the others being put into special beds and carefully guarded and watched until their pearls have grown to marketable size. This invention not only promises to yield handsome profits to its promoters, but its importance is attested by the fact that a paper by Solomon describing it, presented at the International Fishery Congress in Washington, D.C., last September, was awarded the international prize offered by the New York Academy of Sciences "for the contribution, not entered in competition for any other award, which shall be judged to have the greatest practical value to the fisheries or fish culture." A fuller account of Solomon's remarkable work is to be found in the '93 class news in this number.

✓ ARTHUR FARWELL ('93) is becoming widely known throughout this country and in Europe as an ardent advocate of a distinctive American music. Graduating from the Institute as an electrical engineer, he did not follow his profession, but immediately went abroad and spent a number of years in musical study under some of the foremost teachers in Europe. Returning to this country, he carried on for a considerable time some remarkable musical researches among the Indians of the west and south-west and in Central America. No one has ever made such a thorough study of Indian music, and Farwell has succeeded in preserving Indian melodies and songs which soon would have been lost to the world by the extinction of the tribes. Many of these melodies and songs have been harmonized by him and incorporated in his own compositions, which have already given him high rank as an American composer. In his zeal for the development of a distinctive American music, Farwell has established at Newton Centre, Mass., the Wa-Wan press for the publication of such compositions by American composers as have intrinsic merit and originality. Farwell has organized The American Music Society, with centres in a dozen American cities, whose object is the study and preference of works by American composers and American folk-music. Farwell himself is president of the national organization and of the Boston centre, while David Bispham is president of that in New York.

At present Farwell devotes his whole time to composing, teaching, lecturing and writing for the musical press, and he has given up, for a time at least, his visits to the Indians.

W. Z. RIPLEY ('90). The annual Huxley lecture before the Royal Anthropological Institute of Great Britain was delivered in London, November 25, by Professor W. Z. Ripley, on the subject "European Races in the United States." The Huxley medal was conferred on Dr. Ripley on this occasion in recognition of his book on the Races of Europe and of his general researches in the demography of Europe and the United States. The popular portions of the address have appeared in the *Atlantic Monthly* for December.

HENRY M. HOWE ('71), with Professor William Campbell, of the department of metallurgy of the Schools of Mines, Engineering, and Chemistry of Columbia University, has been appointed by the American Society for Testing Materials as their representative on the international committee dealing with the problem of uniform nomenclature of iron and steel. Professor Howe is chairman of this committee.

Mr. S. K. HUMPHREY ('90) has stimulated discussion of an important question by his article in the *Atlantic Monthly* for November on "Automobile Selfishness," dealing with certain fundamental aspects of the present use of public highways in a sane and definitely practical manner. The publication of Mr. Humphrey's paper has been followed by a discussion at the Twentieth Century Club, on December 19, by Major Henry L. Higginson, Mr. Robert Homans, and Mr. Humphrey, on the inadequacy of the present restrictions of the automobile.

HERBERT T. KALMUS ('04), of the Physics Department of the Institute, has effected a remarkable cure of a lupus patient by experimenting with the chemical effects of ultra violet light. An induction coil capable of giving a 30-inch spark was used, so arranged that the spark was reduced to half an inch, so that little heat, but a very large amount of light, was produced. Dr. Kalmus is making further experiments in collaboration with Boston physi-

cians who have become interested in the remarkable results of the investigation.

LOUIS A. FERGUSON ('86), vice-president of the Commonwealth Edison Company of Chicago, is president of the American Institute of Electrical Engineers. This is the highest honor that the profession can confer. Mr. Ferguson is generally recognized as one of the ablest and most distinguished central station engineers of this country. He was president of the National Electric Light Association several years ago.

GEORGE F. SWAIN ('77), JOHN R. FREEMAN ('76), and CHARLES T. MAIN ('76), have been appointed by the American Society of Mechanical Engineers to assist the National Conservation Commission in valuing water powers. This appointment was in response to a request from the Commission, asking the Society of Mechanical Engineers to appoint on the committee the three ablest men in the profession.

CASS GILBERT ('80) was made president of the American Institute of Architects at the annual meeting in Washington, December 17. Of the six Fellows of the Institute chosen at the meeting, four were students in the architectural department at Technology. These are F. C. Baldwin ('90), Myron H. Hunt ('93), G. Harleston Parker ('95), and J. H. Perkins ('89). Mr. Gilbert was a member of the National Jury of Fine Arts at the World's Fair in Chicago, and the National Jury for Architecture at the Paris Exposition in 1900. He has designed many public buildings, some of the best known of his undertakings being the Union Club Building in New York; the new State Capitol at St. Paul; the Art Building and Festival Hall at the Louisiana Purchase Exposition, and the Essex County Court House at Newark, N.J. Mr. Gilbert is a native of Ohio, and was a special student at the Institute with the class of '80.

HARRY W. TYLER ('84) is president of The American Federation of Teachers of the Mathematical and Natural Sciences.

G. A. MOWER ('81) presided at the recent Thanksgiving dinner in London, at which Ambassador Reid was the principal speaker.

CHARLES A. STONE ('88), EDWIN S. WEBSTER ('88), RUSSELL ROBB ('88), and HENRY G. BRADLEE ('91) are members of the firm of Stone & Webster, of Boston, who have been retained as street railway experts to assist the joint reorganization committee of the Metropolitan Street Railway to devise ways and means of reorganizing and rehabilitating the surface lines of New York City. The Metropolitan Street Railway rehabilitation is the fourth or fifth large piece of work which Stone & Webster have taken in hand during the last two or three years outside the management of their own twenty-five odd street railway and electric light corporations. The first large piece of work was the building of three new power stations for the Boston Elevated. A few months ago Stone & Webster were awarded a large contract for the reconstruction and enlargement of the United Missouri River Power Company power plant in Montana. This contract involved fully \$3,000,000. More recently the firm has made an expert examination of several of the Gay properties, including the various Hudson River Power Companies, and there is some possibility that these engineers may take over the practical work of reorganizing and managing the Hudson Power Companies, an \$11,000,000 power development, and one of the most important in the east. One of the leading electrical authorities of New England says: "Stone & Webster have won a national reputation in the electrical field by able management of their own properties and by marked ability in handling the few large pieces of outside work which they have undertaken. I believe their engineering department will receive a vast amount of expert work during the next few years, and that its development will be a source of pride to New England and incidentally open up new and large channels for the investment of New England capital." Associated with the organization of Stone & Webster are D. P. Robinson ('92), Charles F. Wallace ('92), W. H. Blood, Jr. ('88), F. O. Stetson ('88), B. R. T. Collins ('88), H. H. Hunt ('89), and a score or more of younger Technology men.

OBITUARY

ARTHUR WARD HUNKING ('72).—News has been received of the death in Helena, Mont., of Arthur Ward Hunking, of Lowell, well known as an hydraulic engineer. He died suddenly from apoplexy. Mr. Hunking, who was in his fifty-eighth year, was born in Haverhill, and was a special student at the Massachusetts Institute of Technology with the class of '72. For many years he was engineer in charge of the locks and canals controlling the water power on the Merrimac River at Lowell. Of late years he has been consulting engineer for Stone & Webster. He was connected with a number of leading engineering societies.

WILLIAM MARTIN AIKEN ('79), who was consulting architect for New York city during Mayor Low's administration, died in New York, December 7.

Mr. Aiken was born in Charleston, S.C., in 1855. He was educated at the University of the South, and then took special courses in architecture at the Massachusetts Institute of Technology. He began his practical work in the office of H. H. Richardson, of Boston, and then went to Cincinnati, where he taught in the Art Academy and practised his profession.

In 1894 Secretary Carlisle made him supervising architect of the Treasury Department. While in the Federal service, Mr. Aiken designed the government buildings for the expositions at Atlanta, Nashville, and Omaha. He was also the architect of the new mint buildings at Philadelphia and Denver, and of several post-offices and custom-houses.

Mr. Aiken was a fellow of the American Institute of Architects, and a member of the Century Association, the Architectural League, and the Southern and Ohio societies. He was collaborator with Russell Sturgis in compiling the Dictionary of Architecture.

RICHARD H. SOULE ('72), of Brookline, died at his residence 1571 Beacon Street, December 14, at the age of fifty-nine, after a month's illness. Until his retirement from active business four years ago, he had been for many years prominent in New York and elsewhere as a consulting mechanical engineer. He devoted his life to railroad engineering in various parts of the country. He was born in Boston on March 4, 1849, was graduated from Harvard College in the class of 1870 and from the Institute of Technology in 1872. He has been for two years a member of the Corporation of the Institute. He leaves a widow and two sons, Winsor Soule and Augustus W. Soule, both of Brookline.

Communication

EDITORS "TECHNOLOGY REVIEW":

Gentlemen,—The circular just issued by the Alumni Association contains a biographical sketch of the President-elect, Dr. Richard C. Maclaurin, which, I am informed, was reprinted from the circular sent to members of the Corporation. In it Professor Maclaurin is said to be at the head of the Physics Department of Columbia University,—a statement which was corrected by a member of the Corporation at its meeting in November.

Reference to the *Bulletin* of Columbia University for the present year shows that Dr. William Hallock is head of the Department of Physics, and a recent conversation with Professor Hallock confirms this fact. A copy of the alumni circular lay on his desk, and, although, he was not disposed to attach importance to the matter, justice to both him and to Dr. Maclaurin requires at least a conspicuous correction of the misstatement.

It may be added that our new President is spoken of by his Columbia colleagues with admiration and affection, but it is felt that their loss will be our gain.

Very truly yours,

A. LAWRENCE ROTCH, '84.

WHAT THE EDITORS SAY

The following editorials from three different points of view are indicative of the expressions about the appointment of Dr. MacLaurin, from all over the country :—

THE PRESIDENCY
OF THE MASSACHUSETTS
INSTITUTE OF TECHNOLOGY

The Institute of Technology has now solved a problem of some delicacy and difficulty in selecting for the head of that institution Professor Richard Maclaurin, at present at the head of the Mathematical Physics Department of Columbia University, and he has accepted the honor and the responsibility. The Institute has been under capable direction during the nearly two years that have elapsed since the resignation of President Pritchett. Acting President Noyes has maintained its high standards and manifested a degree of executive skill that probably would have given him the full title and lodged the full authority of the position in his hands, had he been disposed to accept them. But his chosen field of chemical research has possessed more attractions for him. In it he has opportunity to blaze new trails in scientific advance, and he is to be commended for his clear and loyal following of his own light and leading in this matter.

The new President evidently understands in its general features the nature of the work to which he has been called, and his record in educational service indicates that he is one who readily becomes master of detail. The experience will be not less new to him than to the institution, which now, for the first time, will be under the direction of a man born in another country and trained in foreign schools and universities. That is not necessarily an objection. It may prove a positive gain. Professor Maclaurin is a comparatively young man. His attainments are more than excellent: they are extraordinary, and few men of his years have won more flattering recognition from sources that bear the stamp of authority.

Of course, mere scholarship, even of the highest order, is not enough to meet all the requirements of this new responsibility. His executive ability and his adaptability can be proved only by actual service. But Scotch scholars are thorough. Their standards are high, and shrewdness and per-

sonal tact are among their national characteristics. When Princeton called Dr. McCosh to the presidency, he was a man well along in years, but a famous metaphysician, and he filled the place with distinction. The Institute does not need metaphysicians, and the new President has not turned his researches in that direction. He has made great advances in modern science; he is learned in the principles of law, and is undoubtedly an enthusiast with respect to the various lines of research with which he has been so conspicuously identified. The Institute authorities, the alumni, and the public have a well-grounded hope that under his administration a new era of prosperous service will open up for this famous school.

—*The Boston Transcript*.

A NEW EDUCATIONAL
LEADER

With the choice of Professor Richard C. Maclaurin, LL.D., as its President, the Massachusetts Institute of Technology enters upon a new and important stage in its history. The recent discussions concerning the proposed association with Harvard have brought the alumni, Corporation, and Faculty into more profitable relation than ever; but there are problems involved in the matter of a suitable site for the Institute, ways and means for adequate endowment, and for the increased expense of improved methods of instruction, and the development of the social life of the student body, which await solution by the new President. During the nearly three years in which the presidency has been vacant and the Institute has been under the administration of Acting President Noyes, the work of instruction has gone on steadily, and the extraordinarily high reputation of this efficient technical school has been finely maintained. To this institution comes a man of exceptional ability and achievement. At the age of thirty-eight he is at the head of the Department of Physics of Columbia University. He is a native of Edinburgh, Scotland, but his early boyhood was spent in New Zealand, and his preliminary education was completed in English schools. His record at Cambridge University is unusual, for he gained two of the most-coveted prizes of the University in two different and distinct branches of learning,—mathematics and law. Ten years ago he was appointed Professor of Mathematics in Wellington, New Zealand, and became a trustee of the University of New Zealand. Five years later he was made Dean of the Faculty of Law. While in New Zealand, he was actively engaged in the organization of technological education there. A year ago he was called to the chair of Mathematical Physics at Columbia, and this year was made the head of the Physics Department. He is a believer in

the union of technical education with education for culture. He has received the degrees of both Doctor of Science and Doctor of Laws from Cambridge University. His election is full of promise to the Massachusetts Institute, and to the cause of education in this country.—*The Outlook*.

HE TYPIFIES
AN IDEAL

The chief thing to be emphasized in modern culture, possibly, is the importance of substituting the scientific spirit of exactness for the amateur spirit of superficiality, and the chief problem of the modern university is to shape men who cherish the Baconian ideal of a many-sided learning. The new president of the Massachusetts Institute of Technology is a man who typifies this ideal in a manner almost unique. It is unusual in this country for one man to win eminence in such widely dissociated fields of scholarship as those of law, mathematics, and natural science. Mr. Maclaurin unites with this versatility a versatility which one would like to call American, if that did not seem unduly optimistic regarding the land of one's birth, the ripe and noble scholarly traditions of the English University of Cambridge. Harvard will look in vain for a president of the same mould, though it will find plenty whose achievement, within a more restricted sphere, has been equal, if not greater. In its zeal to find and develop an administrator of the first rank, let Harvard not overlook the influence its president must have on the popular ideal of culture, and the desirability of investing with this influence a man of the proper intellectual habits and ideals.—*Brookline (Mass.) Chronicle*.

MISCELLANEOUS CLIPPINGS

[From the Boston *Post's* account of the torchlight parade.]

The Tech students were the liveliest of the paraders, and displayed the most transparencies. They wore red and gray gowns and mortar caps and took advantage of every opportunity to make themselves heard.

[The enterprise of *The Tech* in getting out a torchlight parade extra is commented on by the Boston *Journal*.]

That the Technology students possess the most enterprising student newspaper in New England was demonstrated last night, when *The Tech* got out an extra containing a special despatch from Judge Taft, and had the paper on the street among the college men before the parade broke up. The *Harvard Crimson* and *The Tech* have long been rivals in the matter of getting out extras, and up to last night the *Crimson* held the record for speed. *The Tech* published the following telegram:—

BATAVIA DEPOT, N. Y., Oct. 30, 1908.

Editor-in-Chief of The Tech, Massachusetts Institute of Technology:

Hope you will express to the college Republican paraders my appreciation of their efforts toward the victory which will be ours next Tuesday.

(Signed) WILLIAM H. TAFT.

The Tech also contained a special interview with Lieutenant Governor Draper.

[Editorial in the Boston *Advertiser* referring to the adoption of the "point system" limiting office-holding. The action was taken by the students' council, the Institute Committee, on its own initiative.]

The action by the Institute of Technology Committee in limiting the number of non-scholastic offices which any one student may undertake is wise and timely. It is a proper emphasis, rightly placed, upon the purposes of so serious-minded an educational institution as Technology is. It squarely meets the growing evil of too general activity by undergraduates in matters not directly connected with the serious and important work of the Institute. There is a place in schools and colleges for matters other

than "book learning." Technology, however, has emphasized the strictly educational ends rather more strongly than other institutions of learning, and thus it is fitting that this protest should come there. The general principle emphasized, however, that extra-scholastic activity, social pursuits, should be effectively subservient to the designated purposes of college or technical education, is eminently sound and may be profitably pondered by other institutions. When a young man essays outside activities which are so requiring as to shift the proper balance between these and his studies, some restriction plainly is desirable. The Technology position is wise as applied to its own case. It offers a profitable hint to other institutions.

[Editorial in *The Tech* of September 30.]

The New Union illustrates the new Tech spirit which recognizes student activities not as necessary evils, but as encouraging signs of energy and initiative among the students, and things of educational value. It shows that the Corporation and Alumni are closely in touch and in genuine sympathy with the undergraduates. Technology and Technology men are not notoriously rich, and gifts here mean a sacrifice and merit a higher order of gratitude than those at a richer institution. That the Corporation and friends of the Institute should feel so much interest in the welfare of Technology undergraduates that, even when there is still some talk of changing the site of the Institute, they should invest a considerable sum of money in a New Union and then turn it over without restrictions to the students for them to manage for their own use, will make every undergraduate consider thoughtfully his obligations and responsibility in connection with such a splendid gift. In fact, this has already been noticeable. The excellent work of the present board of control looks well for the future practicability of student management, and the enthusiastic spirit shown on every side cannot help but make the Union a thorough success. In this way, by supporting the Union loyally, by managing it capably, and by doing work in student activities that will further advance their reputation with the Faculty and Corporation, the present undergraduates can express a practical appreciation and gratitude for the New Union much finer and more lasting than mere words of thanks.

[Editorial in *The Tech* on the "point system."]

The Institute Committee in its first definite action has struck frankly at one of the basic faults of Technology undergraduate life. Every year has

shown more clearly than the last that a few men in the Institute affairs were doing more than their share. This has resulted in injury to themselves and to the work. The injury to themselves came through overtaxed nerves and failure in scholarship. The injury to the student activities was done by the slighting attention of distracted officers and also from the small number of men vitally interested in activities. When thirty men hold seventy offices, interest in the affairs is not so broad as when seventy men hold the seventy offices. The action of the Institute Committee has remedied these evils by making it impossible for a man to hold more than one major office.

That this innovation will be successful cannot be questioned. Of course, details may be faulty, and can be revised after the scheme has been tested in practice. Also, time should be allowed for conditions to adjust themselves to the new régime. It would be a mistake to force a new set of rules upon student affairs when there is any risk of injuring them by so doing. Still, as a whole, the underlying principle of one man for one office is so necessary for successful student activities, in a college where active undergraduates are few, that it was bound to come sooner or later. It will open up opportunities to men whom the New Union will undoubtedly attract into student affairs, and cannot be opposed without laying its opponents open to a suspicion of undue desire for office holding.

[Editorial in *The Tech* on the abandonment of the fight between sophomores and freshmen on the night before Field Day.]

That Technology is able to keep up with the times and discard worn-out customs is shown by the action of the sophomore class in abolishing the traditional "night before." It is in line with the tendency in all the colleges nowadays to abolish the rushes and hazing. Harvard was obliged to give up "Bloody Monday" because outsiders came in and made it so rough as to cause many serious injuries. It is probable that the death of Grant in a rush at Worcester Polytechnic recently will be a serious blow to the custom of that institution.

The historic "cane rush," which was a regular event each fall at the Institute for so many years, was abolished when Moore, 1904, died from injuries sustained in a rush with 1903. At that time the custom originated of contesting to see whose flag should wave over the field on Field Day. While this was all right for a while, it became impossible to keep out the muckers, and a large force of police was necessary to prevent their interference from having serious results.

Last year, although the sophomores put up their flag, there was practically no scrimmage, as few freshmen came out, and the event was a farce. The general feeling at the time was that the "night before" was a thing of the past. The class of 1910 established a precedent in leaving the freshmen unmolested at their class dinner, which has been followed this year, and will probably be hereafter. The action of the class of 1911 yesterday now establishes the idea, which has been growing universal, that the natural feeling between the two under classes can be settled in an orderly way in the regular contests on Field Day without any "roughhouse" and accompanying evils.

BOOK REVIEWS

TYPHOID FEVER: ITS CAUSATION, TRANSMISSION, AND PREVENTION. By G. C. Whipple ('89), with an Introductory Essay by William T. Sedgwick. New York: John Wiley & Sons.

Few, even among the graduates of the Institute of Technology, realize the important part which the school has played in the remarkable development of sanitation in the United States during the last twenty years. Those who have not been in touch with the campaign for pure water and pure air and clean cities may be surprised at the dedication of the latest book on Typhoid Fever, by G. C. Whipple, which runs as follows:—

"To the Massachusetts Institute of Technology, my Alma Mater, a Pioneer in Sanitary Education entitled to the gratitude of every one who values the Public Health."

Yet this tribute is not undeserved. The Institute was the first school in the United States to so combine chemistry and bacteriology and engineering as to fit men adequately for the new profession of sanitary science. It is very largely through the efforts of our graduates that the war against disease in the environment has gone forward so rapidly; and to-day Institute men are taking a leading part in the campaign all over the Union.

These men are not medical men. The remarkable thing about the new sanitary science is that it deals with the causes of disease rather than with disease itself. Some of the causes as Mr. Whipple points out can best be eliminated by the sanitary engineer, the sanitary chemist, and the sanitary biologist. Water supply and sewerage are their business; and these are the measures which have produced more effect on typhoid fever than any others. On the other hand, the control of the disease in the household, the isolation of the patient, the disinfection of excreta, are within the province of the physician. The two professions must work together, and Mr. Whipple's book should materially help to interpret them to each other and to co-ordinate their activities.

After a brief treatment of the symptoms and bacteriology of typhoid fever, Mr. Whipple takes up The Typhoid Patient as a Focus of Infection. He shows how the excretions of the diseased body may carry the germs by numerous paths to new victims, water, milk, flies and direct contagion being only a few of the numerous vehicles of transfer. The prompt dis-

infection of excreta in the sick-room offers one of the most efficient of all measures in dealing with disease. The neglect of this precaution and the exploded dogma that "typhoid fever is infectious, but not contagious" are perhaps the chief causes of that excess of typhoid fever in the United States which truly constitutes "a national disgrace." In a chapter on "The Typhoid Bacillus at Large," Mr. Whipple discusses with admirable clearness and conservatism the life of the organism in water, ice, milk, soil, etc. He shows that, as a parasitic germ, it finds all these environments unfavorable and gradually dies out, so that more or less direct transfer from infected person to susceptible victim is the thing most to be feared. Filtration of public water-supplies, pasteurization of milk, regulation of oyster culture, and war against the fly nuisance are the chief measures of defence against germs once discharged into the environment, as disinfection and sewage purification, at the other end of the chain, prevent the wholesale infection of the environment itself.

A chapter on Typhoid Statistics and another on the seasonal distribution of the disease, its incidence on the various ages and sexes and races and its prevalence in various geographical districts, close the more general portion of the book. The most important classical typhoid epidemics are then reviewed in some detail, and methods for the investigation and control of epidemics are discussed. Mr. Whipple's experience as an epidemiologist in the Kennebec Valley and at Cleveland, Ohio, equip him well for this part of his task. As he rightly says, "To trace an epidemic to its source is not so much a study for the doctor as for the statistician, the detective, the bacteriologist, the chemist, and the engineer. The specialist has to be all these at once."

After a more detailed discussion of the actual results attained by improvements in water supplies and milk supplies, Mr. Whipple takes up the financial aspects of typhoid prevention, along the lines of his earlier book on "The Value of Pure Water." A great deal of nonsense is written to-day about the extent to which various diseases could be prevented and the financial profit to be derived from the transaction. Mr. Whipple writes no nonsense. It is sober truth that a large proportion of the 30,000 deaths from typhoid fever in the United States could be prevented. Perhaps, as Mr. Whipple estimates, the preventable proportion is three-fourths; perhaps we can only hope by any practical improvements to cut our present death-rate to one-half. The main fact remains that we have a vast amount of preventable typhoid. The reasons why we have it and the methods we should adopt to do away with it could scarcely be better presented than

Mr. Whipple has presented them. His book is orderly and progressive; its facts are accurate and full; the judgment of the author is sound throughout; and his style is clear and readable.

The subject-matter of this book should not be confined to physicians and sanitarians. There is scarcely an intelligent engineer or a public-spirited citizen who would not be the better for a clear knowledge of the causes of the principal diseases and of the specific preventive measures by which they can be met. Professor Sedgwick says in his introduction:—

“The statement is often made that ‘for every case of typhoid fever some one ought to be hanged.’ It is a striking saying and worth remembering, because it puts the responsibility for this disease where it belongs; namely upon mankind, and not upon fate or the gods. But, unless hanging is to be introduced as a penalty for ignorance and neglect, it is not often true. What is true is that *every case of typhoid fever comes from somebody’s ignorance or neglect*. And here also the remedies are education and training, with penalties only for criminal negligence. We might more truly say that for every case of typhoid fever some one ought to be educated.”

Mr. Whipple’s book is admirably adapted to carry forward this work of education.

C.-E. A. WINSLOW, '98.

THE MAN WHO ENDED WAR. By Hollis Godfrey ('98). Boston: Little, Brown & Co.

The novel is not a form of literature in which Tech men are usually prolific. Since, however, Mr. H. G. Wells has shown that the wonder-story with which Jules Verne delighted us in our youth could be developed on the latest scientific lines and made of absorbing interest for adults, there is no reason why novelists should not “prepare” at Tech, by learning about the material they are to handle.

Hollis Godfrey is primarily a teacher of chemistry, but a teacher who reaches out beyond his class-room to use the wider influences which are at the command of his profession. A series of articles in the *Atlantic Monthly* on the health of the city are examples of excellent scientific popularizing,—that task which is to-day of such supreme importance and such supreme difficulty. The present volume, however, is not at all educational. It is simply an amazing story. Yet this, too, is useful; for scientific wonder-stories, if the wonders are not wholly unreasonable wonders, help to create an atmosphere favorable to scientific work.

The Man who ended War made use of a tremendously powerful radioactive substance which destroyed metals, causing them to vanish into gaseous form like a puff of smoke. He warned the governments of the world that their warships would one by one disappear, and all aboard perish, if disarmament were not at once begun. Contempt for a crank gradually gave way to alarm and terror, as these dire prophecies were fulfilled. But meanwhile the hero of the book, a reporter, his friend, a physicist, and the physicist's charming sister, are on the track of "the man who will stop all war." By radiosopes and wave-measuring machines they follow the trail of the mysterious destroyer. In a boat insulated against the deadly waves, they watch his work at close range. When the nations finally yield, they communicate with him by wireless, that both he and the world may be at peace. Meanwhile another wireless circuit has been completed, which includes Jim and Dorothy, to the great satisfaction of all concerned.

Mr. Godfrey's miracles are sufficiently plausible to hold one's interest. The sense of mystery all through the book is well sustained; and the human side of the problem is not neglected. Passages, like the following description of a reconnoissance by search-light, testify to good observation and a mastery of words:—

"Constantly we moved in light, while all else was in shadow. Before us was the shore, lighted as by a ghostly radiance, on either side was darkness, such darkness that we could barely distinguish the sky line of bluff and tree against the sky. We neither spoke nor moved, and the sailors forward scarce broke by a movement the silence, with its single sound rising above the monotony of the waves. Dark green of pine and cedar, lighter green of scrub oak, yellow gray of sand dune, soft brown warmth of massive boulder, curling white where splashing waves broke on the glistening pebbles of the shore, ragged stump and lofty maple,—all were etherealized by the silver, shifting light."

The description of the last review of the armies of England before their final mustering out is done with a rare touch of pathos. Altogether, it may confidently be predicted that any one who begins this book will finish it, and then will wish that Godfrey would write some more stories of the same kind.

C. E. A. WINSLOW, '98.

BOILER ACCESSORIES. By Walter S. Leland ('96). 123 pages, $6\frac{1}{2} \times 9\frac{1}{2}$ inches. Published by the American School of Correspondence. Chicago, Ill.

Of late years the need for books which treat a limited subject in the mechanical field specifically, has become more and more apparent, and the American School of Correspondence has brought out a number of books which deal each with one limited division of mechanical knowledge. By doing so, it is possible to present a more complete treatise on this particular subject than is possible in a large work trying to cover the whole territory of mechanical engineering. This book deals specifically with boiler accessories, boiler setting, control and supply devices, and one part of the book is devoted to the troubles met with in boiler operation and the carrying out of tests. In preparing this material, it has been the aim of the author to lay special stress on the practical side of the subject, treated as distinct from mere theoretical and academic discussion. The book is illustrated with seventy-two line engravings and several half-tones made from photographs of existing boiler plants.

THE STUDY OF STELLAR EVOLUTION. By George E. Hale ('90). pp. xi + 252; 104 plates; 7 text figures. University of Chicago Press, 1908. Price, postpaid, \$4.27.

This intensely interesting volume from the pen of one of the Institute's most eminent alumni should be read by every one who would learn something of the remarkable instruments and methods which have been developed and of the results obtained during the last fifteen or twenty years in the domain of astrophysics. In this particular field of research no one has contributed more, by the invention of novel and powerful instruments and by actual results obtained, than Professor Hale, and he has given in the volume before us a delightfully characteristic non-technical account not only of what has already been accomplished, but also of problems at present under investigation, and of others which remain to be solved in the future.

As originally planned, the work was intended to be a handbook of the Yerkes Observatory. In its present form, however, it is much more than this, including, as it does, an account of the very recent work on Mount Wilson, California, where under a grant from the Carnegie Institution Professor Hale has established the Carnegie Solar Observatory,—unique among its kind, as well as of the researches carried out by him and his associates at the Yerkes Observatory. In the development of a programme

of observatory work, together with its necessary instrument equipment, the author has always had before him the problem of stellar evolution in its broadest sense. This explains the wide range of investigations touched upon in this volume. Of particular interest is the discussion of various novel types of telescopes and of the work for which each is especially adapted. In the modern astrophysical observatory, however, the telescope, although a necessary, is by no means a sufficient instrument of research. To the astrophysicist it serves but to bring the image of some celestial light source to a focus within his laboratory, there to be submitted to minute analysis with the aid of powerful spectroscopes and their accessories. The sun, being the nearest of the stars, furnishes the richest field for such research, for it is only by an exhaustive study of its chemistry and physical condition that we may hope to interpret the conditions, as recorded by their spectra, of the more distant stars. Professor Hale's own epoch-making researches in the field of solar physics are well known, and the chapters devoted to them are especially interesting.

"The Study of Stellar Evolution" is not in any sense a treatise on theories of the evolution of celestial bodies. On the contrary, it is discursive in style, and the various subjects discussed are treated more or less individually.

The reader feels, however, that he is introduced into the very midst of the problems which are attracting the attention of astrophysicists at the present time, and it is this which gives to the work such lively interest. The magnitude of some of the undertakings projected, as well as of those already accomplished, cannot fail to impress him as astounding. To mention but one, the construction, transportation to the top of a mountain 6,000 feet in altitude, and mounting of the new Hooker telescope, the glass mirror of which is to be 100 inches in diameter, 13 inches thick, and $4\frac{1}{2}$ tons in weight, is an engineering problem in itself of large dimensions.

A feature of the work which should be especially mentioned is the superb collection of plates, 104 in number, which constitute no less than one-half the volume. These include many taken by the author himself and also beautiful examples of photography by Barnard, Ritchy, and Ellerman. The press-work is of a high order of excellence, the volume being one of the series of Decennial Publications of the University of Chicago.

H. M. GOODWIN ('90).

A TEXT-BOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D. (S.B. M. I. T., 1888), Professor of Bacteriology in the University of Chicago and in Rush Medical College. Fully illustrated. pp. 545

and indexes. W. B. Saunders Company: Philadelphia and London, 1908.

If anything had been needed to establish Professor Jordan's reputation as one of the leading bacteriologists of the time, this solid volume of 550 pages would have been more than sufficient.

When Professor Jordan entered the Institute as a freshman, there was nowhere in the world any such recognized science as bacteriology. Even in Germany the first thin volume of the *Jahresbericht* appeared in 1885, but the growth of the new science was so rapid that before young Jordan graduated he had already begun work in what has since proved to be his chosen profession. To this he has now given twenty years of teaching and investigation, of which the volume before us represents the ripe and worthy fruit.

We have had, and are still having, many books upon bacteriology. Of these some are good, some bad, but most indifferent. Some are frankly pathological, some agricultural, some nondescript. Very few are really broad and general or in any degree suitable for classes of beginners in universities and technical colleges. Only Fischer follows the strictly biological path marked out so successfully by De Bary years ago, but now almost forgotten. Jordan parallels this path, and points out clearly in his preface the importance of general bacteriology when he says that this "should find a place in every general scientific course," rightly adding, further on, "For the general scientific student and reader bacteriology presents certain aspects that tend to widen the outlook upon a variety of human interests."

Knowing Jordan's breadth and catholicity of mind, we had come to expect from him a treatment of the subject similar in biological breadth and balance to that of De Bary. But in this one particular we must confess to a slight disappointment, for the pathological aspects of the subject in this volume so largely fill the field of vision as to obscure, to a great extent, other and important relations of the bacteria. It is regrettable, for example, from our point of view, that in a general text-book the bacteria of animal diseases absorb 350 pages, while the bacteria of earth, air and water, and the agricultural, industrial and plant-disease bacteria, occupy only seventy pages. It is also regrettable, from the pedagogic view, that what we may call the more "normal" bacteriology—i.e., the bacteriology of earth, air, soil, water and foods—should not have been made to precede the pathological. This plan, of course, would have postponed too long for the author's purposes, the consideration of the more medical topics, and it may also be

urged, with some force, that the first six chapters form a sufficient general introduction, while the interest in, and the superior knowledge and importance of, the disease-producing forms should cause them to receive the principal consideration.

Apart from this one criticism of balance or proportion, we have only the highest praise to award. The subject is scientifically and generously conceived, thoroughly and dispassionately treated, and securely built upon broad biological foundations. The style is direct, clear and compact. The method of argumentative presentation by discussion, introduced into biological text-books by Michael Foster, is often used, but always in moderation. A few "first aid" foot-notes are wisely given, referring the reader to the original sources of our present knowledge. The pathogenic protozoa and some other strictly speaking non-bacterial forms are properly included, and well, if briefly treated, while a helpful Appendix deals with those infectious diseases, such as small-pox, rabies, yellow fever, measles, mumps, foot-and-mouth disease, etc., of which the germs, if any, are either in dispute or else as yet unknown.

The publishers have done satisfactorily their part. Barring that excessive weight which makes so many modern books a weariness to the flesh, this one is unusually well made. The paper is not excessively thin or shiny, the type is well chosen, the illustrations excellent. Taking it all in all, this is a capital treatise, a solid contribution to biological science, and far and away the best text-book on general bacteriology hitherto published.

W. T. SEDGWICK.

THE SYSTEMATIC RELATIONSHIPS OF THE COCCACEAE, WITH A DISCUSSION OF THE PRINCIPLES OF BACTERIAL CLASSIFICATION. Including a Key to the Genera and Species and a Bibliography. By Charles-Edward Amory Winslow (M. I. T., '98), Assistant Professor of Biology, and Anne Rogers Winslow, Sometime Special Student of Biology, M. I. T. Colored frontispiece and pp. viii+ 300. 8vo. New York: John Wiley & Sons, 1908.

We have here a monograph on one of the great sub-kingdoms of the bacteria such as would do honor to the Proceedings of any scientific Academy or any Association for the promotion of pure science. That publishers have been found willing to bring it out in book form and to add it to the list of their regular publications is striking testimony both to their foresight and public spirit and to the rapidly widening demand for scientific memoirs.

The classification of sparrows and goldenrods is difficult enough, and has long been a puzzle to zoölogists and botanists. But, because of the smallness of the bacteria, differences in the form or structure of these minute beings are usually very hard to detect. Ferdinand Cohn in 1870, roughly subdivided them into rods, balls, and spirals, a grouping which still stands; but beyond this almost childish classification we have had, for the most part, to apply the Biblical test of knowing them by their fruits. For, very much as clergymen and cut-throats may be indistinguishable in appearance, yet are generally separable with ease by their deeds or fruits, so two rods, two balls or two spirals, seemingly alike, may turn out, when judged by their behavior, reactions, products or habits, to be the one harmless, the other murderous. Unfortunately, however, habits and deeds seem to be more variable than forms and structures, and hence the need of long series of observations, careful measurements, and frequency determinations, if these more changeable functional characteristics are to be relied upon.

Professor Winslow, finding the classification of the ball-shaped bacteria in utter confusion, and yet requiring for his own studies to know where he stood when he found, for example, streptococci in sewage and micrococci in air, enlisted the collaboration of Miss Anne Rogers, a well-trained and enthusiastic student of biology, in a thorough study of such members of this group as they could find anywhere in nature or in disease. To this study they brought the latest methods of biometry as well as of systematic bacteriology and chemistry, and the monograph which now appears and bears their names gives their results and testifies to their success.

This monograph will, at first sight, seem to be caviare to the general, but as a monument of patient, persistent and successful scientific research it will stand. It will hold an honored place in every biological laboratory worthy of the name, and be on the desk of every student of systematic bacteriology. One of its most valuable features is an artificial Key to the Genera and Species, and this, especially when joined to the extensive bibliography at the end, makes the volume simply indispensable to the working bacteriologist, pathologist or sanitarian.

The publishers have done their full part. The paper is good and free from all unhygienic shine, the type is handsome, and the press work and binding are excellent.

WILLIAM T. SEDGWICK.

PUBLISHER'S PAGE

The advertising department of this issue of the REVIEW covers a wider field than usual. It now more nearly represents the real value of this magazine as an advertising medium and the quality of the buying public to which it appeals. Most of these announcements have particular significance for friends of Technology, and it is hardly necessary to suggest that the spirit of co-operation which is in the air be extended to those who are lending us a very welcome hand.

The REVIEW has no advertising solicitors on salary or commission,—the low rates offered will not permit,—but it appeals, and will further appeal, to many because of the character of its audience and the keenness of Tech men to take up with the things offered that are worth while. The increase in circulation and interest because of culminating events places the magazine in a very strong position.

The success of the business department of this number is largely due to the energetic work done by the secretaries of the classes, through whose efforts the REVIEW was founded. The interest in the advertising feature that has been stirred up should mean a continued increase in the patronage of this department, and we shall be glad of any further assistance from those who have the welfare of the REVIEW at heart. Rates are as follows:—

	<i>Per Year.</i>	<i>Per Issue.</i>
Professional card, $2\frac{3}{8}$ inches x $1\frac{5}{8}$ inches	\$10.00	\$3.50
One-quarter page	35.00	12.00
One-half page	60.00	20.00
One page	100.00	35.00
"Want" ads. \$1.00 for 4 lines, half the width of advertising page.		

The April number of the REVIEW will contain the complete program for the Second Technology Reunion; an account of the alumni dinner in Boston; an article showing the plan of organization that is being worked out among the undergraduates, which is an education in itself, and which is challenging the attention of the college world; plans for the inauguration of Dr. Maclaurin as President; the educational advances made by the Institute, and the most notable work of the research laboratories; a full account of the activities of the twenty-five alumni associations all over the country; "Tech Men in the Public Eye"; class news; and reviews of books written by Tech men. The many important events that may transpire during the next three months will be faithfully chronicled, so that the REVIEW will be indispensable to every man who has faith in Technology.

The announcement that the Alumni Association will publish a list of non-graduates is only a small indication of the general appreciation of the part that special students have played in advancing Technology. It is expected that every interested member of this large body will become actively identified with the great work that is before us, and apply for membership in the Alumni Association. The membership fee includes subscription to the REVIEW, now the official organ of the Alumni Association, and each member will receive a copy of the Register of Alumni, not graduates. Associate members have every privilege of the Association except holding a few of the elective offices. They vote for all officers, including term members of the Corporation, and are eligible for election to the Alumni Council.

NEWS FROM THE CLASSES

1868.

ROBERT H. RICHARDS, *Sec.*, Mass. Inst. of Tech., Boston, Mass.

During the summer R. H. Richards made an extended trip visiting western concentrating mills for the purpose of explaining, with a view to the introduction of his new pulsator classifier and pulsator jig, devices for concentrating ores. He has found the mill men everywhere most interested in hearing about the new devices and ready to listen and consider the introduction. He has visited some seven districts in Arizona, two in Mexico, one in Utah, and two in Montana, all concentrating copper ores, and has visited one in Missouri and one in Utah, and three in Idaho concentrating lead, and one in Colorado concentrating gold and silver ores.

During Professor Richards' summer trip visiting the mills of Arizona, Mexico, Utah, Idaho, Montana, and Colorado, he made it a practice to get Technology men together for a dinner wherever possible. The following list of dinners were held at the places named, together with the names of those who participated: Morenci, Ariz., about July 2, Frank D. Rathbun ('03), Detroit Copper Company, Albert W. Wells ('05), Detroit Copper Company; Globe, Ariz., about July 6, Harold S. Duncan ('07), Old Dominion Copper Company, Shepartt K. Emilio ('07), Old Dominion Copper Company, Harold C. Plummer ('06), Old Dominion Copper Company, Ralph D. Williams ('04), Miami Copper Company; Tucson, Ariz., about July 16, Ira Wm. Chace ('98), George A. Crane ('07), Robert R. Goodrich ('85), Edward A. Thornton ('07); Nacozari, Mex., about July 12, George H. Booth ('98), C. A. Smith ('02); Los Angeles, Cal., about August 1, James W. Johnson ('82), Willis T. Knowlton ('93), Edward L. Mayberry ('06), Burdett Moody ('90), Louis A. Parker ('06), Samuel Storrow ('90), George E. Hale ('90), Pasadena, Cal., dined together; Mrs. S. P. Clark (Miss Carrie Rice, '82) invited him to her house about July 31; Salt Lake City, Utah, about August 6, Matthew Brodie ('02), E. P. Fleming ('01), Lewis T. Cannon ('96), W. B. Fisher ('78), C. W. Goodale

('75), Bartlett A. E. Wells ('06), Vallette L. Benedict ('94), B. W. Mendenhall ('02); Wallace, Ida., about August 16, F. F. Johnson ('84), P. M. Paine ('04); Telluride, Col., about August 24, J. H. Batcheller ('00), Robert Livermore ('03); Butte, Mont., about August 19, John F. Card ('04), C. W. Goodale ('75), T. B. Black ('09), T. G. Chapman ('09).

1874.

C. F. READ, *Sec.*, Old State House, Boston, Mass.

Thomas H. Sampson, of New Orleans, was in Boston recently, and called upon the secretary. They had not met for so many years that memory fails to record the exact date. Mr. Sampson promises another visit to Boston during the present year.—Charles D. Austin is to return to Boston to live. He has been for many months past superintending the erection of a prominent bank building in Cleveland, Ohio.—Benjamin L. Crosby, who was principal assistant engineer on the construction of the Vancouver Bridge, Vancouver, Wash., has been recently appointed division engineer of the Northern Pacific Railway Company, in charge of operated lines west of Ellensburg, Wash. Mr. Crosby will reside at Tacoma.—Joseph B. Emerson, of Honolulu, who is retired from business, is passing the winter in Lausanne, Switzerland.—William T. Blunt is superintendent of sub-aqueous rock excavation of the Panama Canal, with headquarters at La Boca, Panama. He expects to visit Boston in March next, when he has a leave of absence.—The class association will celebrate the thirty-fifth year of graduation in 1874 by a reunion at Young's Hotel on the 18th of this month. The wives, children, and friends of the members are invited to attend, and the affair promises to be a most successful one. Reunions of a similar nature were held in 1899 and 1904.

1877.

RICHARD A. HALE, *Sec.*, Lawrence, Mass.

Frank C. Skinner, of Missouri, who has just been promoted by Secretary Garfield and President Roosevelt to a position on the board of examiners-in-chief of the Patent Office, is a native of Lawrence, Mass., where he was first educated in the Lawrence High School. He is also a graduate of the Albany Law School.

recent work of the Institute will impress the reader of Little's article in this number of the REVIEW. It is of particular satisfaction to '85 men to know that this laboratory came about largely through the efforts of H. P. Talbot, whose comprehensive foresight has placed the chemical department so well in the front. At the Baltimore meeting of the American Society for the Advancement of Science, Talbot presided as chairman of the Section on the Education of Chemists, and gave a short address on "Science Teaching as a Career," as a retiring chairman of section "C" of the association.—*Charities* of New York published a sketch of Charles R. Richards, the new director of Cooper Union, in November. In speaking of the work of the Union, *Charities* says that the general course in science occupies the most prominent place on the curriculum. "It requires five years' regular attendance for five nights a week. Seven hundred and thirty men have been graduated from the general science course since it was organized, and many of them are now holding prominent positions in the engineering world. The new director does not minimize the great importance of the science courses, but he does believe that the purely scientific and technical instruction in engineering and chemistry should be expanded to include special classes where instruction will be more directly related to the industries of New York. Courses relating to the building trades and to many of the manufacturing industries and special classes in industrial chemistry are among the possible lines of development, and it is the new director's task to increase the financial and physical resources to make the additional work possible."—C. D. Brown & Co. have moved from their old building on Congress Street to handsome offices in the new John Hancock Building, 49 Federal Street, Boston.

1888.

WILLIAM G. SNOW, *Sec.*, 1108 Penn Mutual Building, Boston, Mass.

B. R. T. Collins has recently been in California investigating oil-boring plants. He is now in El Paso, Tex., where he has made his headquarters since April.—Buttolph, Thompson, and Snow attended the December meeting of the American Society of Mechanical Engineers in New York.—Richard Vose is connected with the Bridge Department of the Mexican Central Railway.—The secretary is about to publish another decennial report. He wishes to urge class members to send in news items to him for publication in THE TECHNOLOGY REVIEW.

1889.

PROF. W. E. MOTT, *Sec.*, Mass. Inst. of Tech., Boston, Mass.

The committee authorized at the last annual meeting to consider plans for the twentieth reunion has been appointed by the class president. The members are as follows: W. B. Thurber, F. R. Hart, G. C. Wales, W. C. Kilham, and the secretary. The committee is to report at the next annual dinner to be held Monday evening, February 1.—W. M. Duane has resigned as chief engineer of the "Big Four," and is reported as connected with a large Chicago construction company.—As a member of the Fire Commission of Brookline, W. W. Estabrook has been instrumental in providing the town with an unusually imposing fire-engine house and headquarters.—S. H. Mildram, who ran as an independent candidate for representative from Ward 24, Boston, at the recent election, was again elected to the legislature. The firm of Rankin ('89), Kellogg ('87) & Crane ('89), architects, 1012 Walnut Street, Philadelphia, has been selected to design the new Mechanic Arts High School at St. Paul, Minn.—The Keller-Pike Company, Philadelphia, general electrical contractors, is responsible for the entire electrical equipment of the new building of the Girard Trust Company, Philadelphia. The United States Mint, National Export Exposition, the State Capitol at Harrisburg are among the large contracts recently completed by this firm.—G. C. Whipple, whose business address is now 103 Park Avenue, New York city, has recently published a book on typhoid fever, and it has received most complimentary reviews. His firm is busy with many designs, notably a mechanical filter plant for Brisbane, Australia, and a sand filtration plant for Toronto, Canada.—Harrison Loring, Jr., is now a counsellor-at-law, having been recently admitted to the bar. The following notice received by the secretary will interest not only '89 men, but all former students of Professor Swain as well:—

On May 7, 1908, Professor Swain delivered an address on the Subway System of Boston before the Brooklyn Engineers' Club, of which Whipple ('89) is president. The meeting was held in the chapel of the Brooklyn Polytechnic Institute, where Spofford ('93) is professor of civil engineering.

Just before the meeting a complimentary dinner was given to Professor Swain by as many of his former students residing in New York as could be gotten together. About fifty were present. The occasion proved a most enjoyable reunion.

The dinner was held in Fraunces' Tavern, New York's oldest hostelry, famous for the farewell dinner when George Washington bade good-bye to his officers.

1890.

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

Mrs. Anne M. Calkins, wife of Professor Gary N. Calkins, of Columbia University, died October 18, in a private hospital in Cambridge, where a week before she underwent an operation. Early in the summer Mrs. Calkins came from her home in New York to visit her mother, the widow of Attorney Chauncy Smith, at the family residence, 121 Brattle Street, Cambridge. While there, she became ill.—Under the auspices of the Royal Anthropological Institute, of London, England, Professor William Z. Ripley, of Harvard University, was presented with the Huxley gold medal November 13, and delivered a Huxley memorial lecture dealing with the European population in the United States, in which he pointed out the danger of the physical submergence of the English stock in the United States and Canada by the flood of continental European peoples, arising from the declining birth-rate of Anglo-Saxons as compared with the birth-rate of other immigrants.—Mr. W. I. Finch is reported to be at Atlantic City, N. J. This is the first report we have had from Finch since his freshman year at Tech.—Mr. E. H. Brownell is now at the Naval Station at Cavite, Philippine Islands.—Mr. Samuel W. Babbitt, who was a special in the class, died on May 17, 1908.—Mr. F. B. Hall is at 27 William Street, New York, N.Y.—Mr. H. B. Spaulding, the artist, has had an exhibition at R. H. Stearns & Co., from November 12 to 21, of "New England Impressions." Spaulding has had a number of exhibitions this fall, and his work is meeting with great success.—Lieutenant John B. Blood won second prize at the naval rifle competition of the M. V. M. Naval Brigade.—Mr. Gordon Eaton is one of the team of the American Whist Club of Boston to play for the Robinson trophy.—Mr. Calvin W. Rice was secretary of the local committee of New York for the annual meeting of the American Society of Mechanical Engineers which was held in New York the week of December 1. Mrs. Rice was on the Ladies' Reception Committee.

1891.

HOWARD C. FORBES, *Sec.*, 88 Broad Street, Boston, Mass.

Garrison is interested in an Art Marble Company, with works in South Brooklyn, N.Y., where E. G. Thomas ('87) is superintendent. They have a process for turning out marble of the most

beautiful colors and designs, comprising tiles, clocks, book-holders, columns, etc. They are just being marketed in Boston among the jewellers and stationers. They have a room at 33 Broad Street, Boston, devoted to the marble products. Charles Aiken ('91) is constructing some special machinery for their use. The Choralcelo Manufacturing Company with whom Garrison is associated is just completing its new two-key manual instrument, which will be made public in the spring, when instruments will be ready for delivery. It has been called by experts the greatest musical instrument in the world, and is the culmination of twenty-one years of the inventor's work.—Fiske writes:—

You probably will be interested to learn that on January 1 I shall make a change in my business and leave the Phoenix Insurance Company to go with Henry W. Brown & Company, of Philadelphia, fire insurance agents and brokers. I shall have charge of their branch office in New York at 100 William Street. This is an old-established firm, who make a specialty of handling large accounts, acting as brokers for the property owner in all matters connected with their fire insurance. They also act as fire protection engineers in showing how to construct and protect property so as to obtain the lowest insurance rates and at the same time secure the best indemnity.

I hope you and the rest of the boys will remember the New York address, 100 William Street, and drop in and see me when in "the big city." I shall probably not move my family from Hartford until next spring, and have not yet decided just where I shall make a home, but it will be in some one of the suburban towns or cities.

I received your letter regarding advertising in the REVIEW, and will at once take it up with the firm, and let you know the outcome. I have always been interested in the REVIEW, and want to see it grow and succeed even more than in the past.

1892.

PROF. WILLIAM A. JOHNSTON, *Sec.*, Mass. Inst. of Tech., Boston.

Ambrose Packard writes: "I was in Elizabeth, N.J., and ran across E. R. French, who is now assistant superintendent, Central Division Public Service Corporation of New Jersey." He says he often sees C. H. Bigelow, who is inspecting engineer with L. B. Stillwell at Hudson Companies Power Station.—George O. Bassett has been transferred to the New York office of the Western Electric Company. His present address is 463 West Street, New York city.—Edward C. Wells was most seriously injured in a street-car accident at his home, Quincy, Ill., on the morning of Oct. 29, 1908.

Two cars, each behind time and running in a heavy fog in opposite directions on a single track, were trying to make different switches, when they collided, and the car in which Wells happened to be riding on the front platform was telescoped, and the motorman of that car was injured so that he subsequently died. At the first shock Wells was apparently thrown forward and then drawn backward through the closed door of the car. He was quite badly cut about the face and head by falling glass, and was very seriously bruised on the hip, leg, and foot, and it is probable that his life was saved only by the fact that he was standing in front of the door, otherwise he would have probably been crushed against the end of the car. Wells was at once taken to a hospital, where for a time his recovery seemed doubtful, but he soon began to show signs of improvement, however, and, although he suffered greatly for a time, he was well out of danger and was able to sit up in less than four weeks. At the time of his accident Wells was making arrangements to move from Quincy to Birmingham, Ala., where he had accepted the position of general superintendent and chief engineer of the Hardie-Tynes Manufacturing Company, a firm building engines, hoisting apparatus, air compressors, and general machinery. It is understood that he will go to Birmingham as soon as his injuries will permit.

1893.

FREDERIC H. FAY, *Sec.*, 60 City Hall, Boston, Mass.

Pearl-hunting with the X-ray, an invention of John I. Solomon ('93), is a process which promises to not only revolutionize the pearl fishing industry, but will probably be the means of preserving the pearl oyster, which to-day is rapidly becoming extinct. So important is Solomon's invention that a paper describing it presented by him before the International Fishery Congress in Washington last September, and entitled "A Process for Preserving Pearl Oyster Fisheries and for Increasing the Value of the Yield of Pearls Therefrom," was awarded, by the International Jury of Awards, the prize offered by the New York Academy of Sciences "for the contribution not entered in competition for any other award, which shall be judged to have the greatest practical value to the fisheries or fish culture." From earliest times pearls have been obtained from the pearl-bearing oyster by naked diving, and, so long as this was the only means employed, the supply of pearl oysters remained abundant, for only the shallow depths were reached, and these were

worked in a hap-hazard manner. With the introduction of modern diving apparatus, however, the old natural beds have been completely stripped, and others at greater depths, formerly inaccessible, are being depleted in the same way. The Europeans formerly engaged in the business are seeking other occupations, and to-day most of the pearl fisheries of Eastern waters, with the exception of Ceylon and the Persian Gulf, are in the hands of the Japanese and Chinese, who are the only people willing to work for the meagre returns which the business pays. The statement has been freely made in the past few years by prominent dealers of Europe and America, that no large pearls would ever again come to market except those in the possession of European magnates and potentates, who would be induced to part with heirlooms, possessed in their families for generations, by the extravagant prices offered. Up to the time of Solomon's invention, all of the fished oysters had to be killed before it could be discovered whether or not they bore pearls, and the idea of conserving the pearl oyster business and solving the problem of seeking pearls and shells by any method other than the ruthless destruction of the natural beds seems never to have entered the minds of those engaged in the industry. Ninety per cent. of these oysters have no pearls whatever, and of the remaining ten per cent. only a small portion have pearls of size to be of real market value. Solomon conceived the idea of utilizing the X-ray for preventing the losses and wastes of present pearling methods and for increasing the yield of fine pearls. Briefly stated, his invention consists in exposing the oysters to the X-ray, by which process the life of the oyster is uninjured. The ninety per cent. which have no pearls are returned to the sea in the hope that they may be inoculated with the pearl-inducing cestode, or that they will at least propagate the kind and maintain the number of oysters growing on the banks. Of the remainder those only are selected which are found to have pearls of large size. The others in which the pearls are in the formative process are put into special beds, and carefully guarded and examined from time to time until their pearls have become of sufficient size for the market. To successfully carry out the work, it is necessary to make X-ray exposures from a large area in order to examine a sufficient number of oysters at an exposure, this area being much larger than had been before attempted or required in the field of surgery. Solomon succeeded in devising a special apparatus by which the oysters are arranged in trays, and are radiographed upon a photographic plate, the tray being identified by means of a metallic number or other distinguishing mark, which will show on the plate when the

latter is developed. The tray of oysters is left undisturbed until the plate has been developed, when those oysters in which pearls are indicated upon the plate may be separated from the rest. Solomon organized the International Pearl Company of New York, Ceylon, and Burmah, of which he is president. In 1907 he went to Ceylon; and, upon the Island of Ipantivu, in the north-western province, near the famous pearl fishery of the Gulf of Manaar, he built a plant at an expense of \$50,000 for carrying on the work. This plant has fulfilled all expectations, and has successfully proved the possibility of radiographing pearl-bearing oysters on a commercial scale, thereby disclosing the pearls without injuring in any way the oysters. Solomon came to the United States last fall, and intends to return to Ceylon this winter. Providence permitting, he expects to come back to this country again in a year or so, although he says: "I may not come back. I take great risks, but, as it is all in a day's work, I keep at it."—Arthur Farwell is well known throughout this country and across the sea as an ardent advocate of a distinctive American music. Mention has previously been made in the REVIEW of his remarkable musical researches among the Indians of our western country and of Central America. A great many Indian melodies and songs have been harmonized by him and preserved for all time in his own compositions, and to publish these and other distinctively American music Farwell founded the Wa-Wan press at Newton Centre, Mass., in 1901. This unique organization is for the purpose of studying out a rational basis for a characteristic American music, and it publishes the works of authors expressing such worthy originality. In connection with this work Farwell maintains at his residence in Newton Centre a home for students of music where the student is not only taught to study music, but lives in a delightful musical atmosphere. Farwell is constantly composing songs and orchestral works, and gives lecture recitals upon subjects such as "Music and Myth of the American Indian" and "A National American Music." He is a frequent contributor to magazines, and has recently published an article in the *Atlantic Monthly* on "Society and American Music"; and he has an article in the December *Review of Reviews* on "The Movement for American Music." He is a regular correspondent for *Musical America*, published in New York. As a result of several years' work, Farwell has organized The American Music Society, which has centres in a dozen American cities, whose object is the study and performance of works by American composers and the study of American folk-music. The Boston centre was formed four years ago, and this last year a large New York centre

has been formed, which is to give three concerts this season. Farwell is president of the national organization and of the Boston centre, while David Bispham is president of the New York centre. In the comparatively few years since his return from European study, Farwell has achieved a unique and notable reputation in the musical circles of Europe as well as this country, and apparently he is as yet only at the beginning of a most brilliant career.—John O. Ames distinguished himself by some remarkable work in the lawn tennis singles tournament of the Longwood Cricket Club last July. His most notable achievement was his defeat of Robert LeRoy of New York, challenger in the national tourney at Newport in 1907, after LeRoy almost had the match in his grasp. With each having two sets to his credit, LeRoy led on the fifth by five games to two, when the tide turned and Ames began a dogged, determined play, mustering all his ebbing strength into his lightning strokes; and, as game after game was called in his favor, the gallery began to applaud the pluck and perseverance of the state champion of Rhode Island. LeRoy never got another game after he had won five in the fifth set, Ames winning the set and the match.—E. B. Carney writes that the Lowell Institution for Savings, of which he is treasurer, was the first savings institution in Massachusetts to take advantage of the statute passed last spring allowing savings banks to establish branch depots for the receipt of deposits. Carney says:—

Through the kindness of J. C. Abbot and C. G. Sargent (both '93 men) we take deposits at Forge Village and Graniteville at the factories there once every week, and the operatives seem to appreciate the chance to save. Some one from the bank goes up there on the afternoon of payday, and the results are really astonishing.

—William W. Crosby was engineering expert for the defendants in the famous "Mercerizing Suits" in which a decision in the defendants' favor was rendered last summer by Judge Lowell in the United States Circuit Court at Boston. The mercerizing process, which was discovered over half a century ago, was much improved in the eighties and many manufacturers were using it freely. Certain patents were taken out in the nineties, and suits brought against the manufacturers as infringing these last patents. Crosby did a large amount of research work for the defendants, covering several years, and was one of the expert witnesses. As a result of the decision, the process is now free to all manufacturers. Crosby is associated with F. W. Dean, mill engineer and architect, 53 State Street, Boston.—Herbert N. Dawes, vice-president of the Night-

ingale & Childs Company and secretary of the Dominion Asbestos Company, Ltd., writes:—

I have gone into another business as a side issue, that of raising fruit down in Porto Rico. I am president of the Cerro Gordo Fruit Company of San Juan, Porto Rico, and Boston. Our plantations are at Bayamon, Porto Rico, about seven miles from San Juan on the Mayaguez-Arcebo military road. We expect to have our first crop of pineapples and grapefruit shipped north next spring and summer. We shall put up a pineapple canning factory at Bayamon, probably in 1909. I spent the month of March, 1908, on the island, and was impressed with the possibilities there in the fruit business as well as in other agricultural lines. The soil, climate, and labor conditions are ideal.

—Philip B. Day is the southern sales agent for the automobile department of Studebaker Brothers Manufacturing Company of Chicago, his address being P.O. Box, 327, Memphis, Tenn.—J. W. Ellms writes:—

The new Cincinnati Filtration Plant is located about eight miles above the city. I have been superintendent of this plant ever since it was started in October, 1907. It is a very large plant, having a capacity of 112 million gallons of filtered water per day, and is unusually well equipped. Several new departures in filter construction were made in designing and building this plant, one or two of the most radical of them being based upon experimental investigations which I had myself carried out. These changes have proved phenomenally successful, which, of course, is not a source of sorrow to me personally. The citizens of Cincinnati are just as proud of their clear, pure water supply as they are of the new President-elect, which is saying a good deal.

—The address of William B. Gamble is 31 Home Bank Building, Detroit, Mich.—Edward M. Hagar, president of the Universal Portland Cement Company of Chicago, writes in response to the secretary's inquiry:—

I have been so exceedingly busy that I have little news to give you of any other Tech man, and I can only say that I have succeeded in running all our plants full during the last year, and am now engaged in spending \$2,400,000 increasing our Pittsburg plant from 4,000 barrels to 10,000 barrels a day. When this extension is completed, we shall have a total output of 23,000 barrels a day or 8,000,000 per annum, which is one-sixth of the entire output of the country. As you probably remember, my brother-in-law, E. D. Barry ('95), is superintendent of our Pittsburg plant, and has charge of the construction of the addition.

—Frederick H. Howland, who last year was engaged in the business

of planter at Los Palacios, Pinar del Rio, Cuba, gives his new address as 15 South Street, Baltimore, Md., and his occupation that of farmer.—Simeon C. Keith, Jr., chemist and industrial biologist, has moved his office from 15 Ashburton Place to 88 Broad Street, Boston, Mass.—Ervin Kenison, for many years instructor in mechanical drawing and descriptive geometry at the Institute, has this fall been promoted to an assistant professorship.—W. T. Knowlton, president of the Technology Club of Southern California, has an interesting letter under the news of that club, elsewhere in this number, in which he speaks of the club's annual meeting, which was about to be held on the top of Mount Wilson. Professor George E. Hale ('90), in charge of the Mount Wilson observatory, containing the world's largest telescope, was to entertain the club at a banquet; and the party was to include Gaylord, Knowlton, and F. H. Merrill, of '93. Knowlton is the Tech representative upon the executive committee of the New England College Club which has recently been formed in Los Angeles. A daughter arrived in Knowlton's family in the early fall. He has one other child, a daughter of nine years.—Harry N. Latey is a member of the firm of Latey & Slater, consulting engineers, 100 Broadway, New York, N.Y.—John W. Logan has been promoted to the position of assistant general manager of the steel works department, Alan Wood Iron and Steel Company, Conshohocken, Pa.—Frederic W. Lord writes, "I am the very properly proud father of twin daughters, born Jan. 19, 1908." These young ladies are the Misses Anne Kirkham and Mary Kirkham Lord.—B. M. Mitchell is president of the Conveying Weigher Company, 90 West Street, New York, engineer for the Manhattan Rubber Manufacturing Company of Passaic, N.J., and engineer of tests for the New York Lubricating Oil Company, New York.—On September 30 Henry A. Morss accompanied Charles J. Glidden on the latter's twenty-first balloon ascension, which was made from Springfield, Mass., at 2.35 P.M. in the balloon "Boston." The flight was a beautiful one as the balloon sailed away from the city toward Chicopee. The atmospheric conditions were perfect, except that adequate wind was lacking. During the afternoon Mr. Glidden tried from 400 feet to 3,450 feet in an attempt to find an air current which would carry the balloon in some direction, it mattered little where. There was some little wind at 3,200 feet and more at 1,200 feet, and this was finally tried with the result that the balloon went toward Granby from Holyoke. As it approached Granby, Mr. Glidden decided to descend, and he therefore dropped the balloon until the drag ropes were trailing on the ground. This fact caused

a landing sooner than expected, however, for the drag ropes wrapped themselves around a barbed-wire fence, and lifted it out of the ground for a distance of about thirty feet. Mr. Glidden called to a crowd of boys, who were following the balloon, to get the ropes from the fence so that the balloon could rise again, but they could not free the ropes, and the gas bag soon descended. As it touched the ground, the boys, who had gathered, grabbed it, and carried it along, the gas in the balloon supporting most of the weight. At the request of Mr. Glidden they carried the basket several hundred feet to the top of a hill where there was an open space, and there Mr. Glidden pulled the rip cord and the gas left the bag. In a short time the bag was packed away in the basket and stored in a neighboring barn, and Mr. Glidden and Morss returned to Springfield in an automobile which had followed them all the afternoon. Morss is enthusiastic over this his first ascension. Not content with his victories on the sea in the schooner yacht "Der-vish," the flagship of the Corinthian Yacht Club fleet, of which club he is commodore, it is reported that Morss is to make other ascensions until he receives the certificate of the Aero Club as a pilot of the air.—William S. Resor has left the Chicago Telephone Company to take up the manufacture of automobiles in Chicago. His address is 435 South Humphrey Avenue, Oak Park, Ill.—Henry L. Rice is president of the Illinois Gas Association. A paper written by Rice on "High Pressure Gas Distribution," presented at a recent meeting of the American Gas Institute, was awarded the Beal medal which is yearly offered by the Institute for the best technical paper. Rice is general manager of the Western United Gas and Electric Company of Aurora, Ill.—Howard L. Rogers resigned in September as captain of A Battery, 1st Battalion, Field Artillery, M. V. M., in which organization he had served for nine years in all grades up to that of captain. Rogers is vice-president and treasurer of the Stone & Webster Engineering Corporation, 147 Milk Street, Boston, Mass.—Charles M. Spofford, professor of civil engineering at the Polytechnic Institute of Brooklyn, N.Y., spent the whole of the past summer with other engineers in the investigation of the strength of the new Blackwell's Island bridge over the East River, New York, which is one of the heaviest bridges in existence. Spofford and Mr. C. W. Hudson were associated with Boller and Hodge, who made a report upon the structure to the commissioner of bridges, and Spofford and Mr. Hudson developed independently the formulæ by which the stresses in this huge and indeterminate structure were computed. They had charge of the calculations of the stresses in the bridge trusses, and the

results of their work were published in the *Engineering News* of Nov. 12 and 19, 1908, and form a valuable contribution to the literature of cantilever bridges. Spofford has opened a consulting office in the Hamburg American Building (45 Broadway, New York), where he carries on consulting work in addition to his work of teaching at the Polytechnic Institute.—John F. Tomfohrde, attorney-at-law, has moved his office to 25 Main Street, Charlestown, Mass. His home address is 19 Fenwick Street, Somerville, Mass.—S. P. Waldron, engineer with the American Bridge Company, has moved his office from 42 Broadway to 30 Church Street, New York City. Waldron's home address is 107 North Maple Avenue, East Orange, N.J.—At the annual convention of street railway interests at Atlantic City last October, Robert N. Wallis, of Fitchburg, Mass., treasurer of the Fitchburg & Leominster Street Railway, was elected president of the American Street and Interurban Railway Accountants' Association. This is an active organization with a membership covering the whole country, Canada, and various American dependencies. The office of president of the Accountants' Association carries with it *ex-officio* membership upon the executive committee of nine of the larger and parent organization known as the American Street and Interurban Railway Association. Last year Wallis was first vice-president, and, because of the resignation of the president, acting president, of the Accountants' Association.—George M. York has been promoted from assistant engineer to assistant general superintendent of plant, American Telephone and Telegraph Company, 15 Dey Street, New York, N.Y.

1894

PROF. S. C. PRESCOTT, *Sec.*, Mass. Inst. of Tech., Boston, Mass.

The selection of W. H. King as a candidate for the Corporation as one of the term members is most gratifying to his old friends and classmates. His record since leaving the Institute has been such as would distinctly fit him for this important position.—J. N. Ferguson is now located at 12 Bridge Street, East Cambridge, in charge of important work in connection with the new Charles River Basin.—A. R. Mackay spent a portion of the summer in Boston. He is now mining engineer for I. M. Taylor & Co., engaged with Hutchinson ('92) in the examination and development of ore properties. A short time ago Mackay left for Arizona, where he is now in charge of an important mine, but it is possible that he will be back in Boston in time for the reunion in June.—W. O. Scott has

made an enviable reputation in the service of the city of Providence as milk inspector, and as a result of his labors there has been a great improvement in the milk supply of the city.—H. F. Ripley has deserted the bachelors. In September he was married to Miss Gladys Amelia Budgell, of West Somerville. Ripley is much interested in politics, has for several years been chairman of the Republican Town Committee in Hingham, and is also assistant secretary of the State Committee. These duties, in addition to his wool business, keep him busily occupied; but he still seems to remember his old friends.—S. G. Reed, president of the German-American Bank of Portland, Ore., is in the East, combining a business trip with a visit to his old home and associates. He expressed surprise and great interest at the development of the Institute since he left Boston, and also spoke highly of the regard for the Institute in the far West. Ninety-four is sure to be well represented at the reunion in June. As it is our own fifteenth anniversary, a celebration of that event will be in order, as well as attendance at the general reunion affairs. As soon as the plans for the general reunion are formulated, a central "committee," consisting of all those present at the dinner last June and a few other local representatives, will take up the matter of a special class celebration. It is hoped that we may have a day together at least, and indulge in the games and other forms of enjoyment that characterized the undergraduate days. The secretary would be very glad to receive suggestions as to what can be done; and, as this number of the REVIEW goes to all members of the class whose addresses are known, opportunity is taken to advise all '94 men as to the reunion and to urge their attendance.—R. S. Weston has recently published a long and very important paper on the "Occurrence of Iron in Waters and its Removal." The paper will appear in parts in the *Journal of the American Society of Civil Engineers*.—D. C. Chaffee was recently heard from at his old home in Shelbyville, Ind.—F. C. Green is president of the Commercial Engineering Company, 2 Rector Street, New York city.

1895.

CHARLES H. PARKER, Sec., 39 Boylston Street, Boston, Mass.

The secretary sincerely hopes the other members of the class have been as busy as he has been. If they have, they haven't had time to grumble at the weather or anything else. It is hoped to start the monthly dinners at the Tech Club in Boston in January,

and notices will be sent later to the near-by members of the date. Monday, the 18th, seems like a good time, and any out of town members likely to be here at that time should let the secretary know in advance, if possible, but, if they cannot do that, come anyway. Recent changes of address: J. Winfield Cook, Chico, Butte County, Cal.—Fred B. Cutter, Diehl Manufacturing Company, 128 Essex Street, Boston, Mass.—Fred W. Draper, care Poklewsky-Kosell, Ekaterinburg, Department of Perm, Russia.—Milton L. Fish, 33 Ketchum Place, Buffalo, N.Y.—William P. Robins, 29 East 28th Street, New York, N.Y.—Frank B. Sherman, 205 La Salle Street, Chicago, Ill.—Alfred L. Simmons, Resident Engineers' Office, Cutler Building, Rochester, N.Y.—E. L. Wengren, 57 Exchange Street, Portland, Me.

1896.

PROF. CHARLES E. LOCKE, *Sec.*, Mass. Inst. of Tech., Boston, Mass.

Professor Bradley Stoughton is severing his connection with Columbia School of Mines in order to give his undivided attention to his commercial work, in which he is associated with Professor Henry M. Howe, the eminent authority on iron and steel.—Mr. M. A. Sears is spending the winter in Boston, being engaged in special work in the mining laboratory at the Institute. He still maintains his office in New York.—Dr. J. Arnold Rockwell has just announced that he will offer for competition the Rockwell challenge cup as a trophy for Institute runners. This trophy is to be held permanently by the man who wins it each year, which means that Dr. Rockwell is prepared to furnish annually a new cup for competition. The class of '96 will be interested to learn that Dr. Rockwell's record for the "quarter-mile" still stands unbroken at the Institute.—The writer received a call from Morton C. Tuttle, who was with us in our early years and later went to Dartmouth. He is secretary of the Aberthaw Construction Company at 8 Beacon Street, Boston. He has been making a study of the use of concrete and steel in mining work.—Joe Knight has sent out announcements of the formation of a partnership with Charles A. Snow under the firm name of Snow & Knight, with law offices located at 50 Ames Building, Boston.—Congressman Butler Ames has figured extensively in the newspapers this fall, first because he received the nomination for Congress from both the Republicans and from Democrats, the last not without some opposition, however. The latest report from him is that he has constructed an aëroplane, and experi-

mented upon it at the links of the Longmeadow Golf Club in Lowell, Mass. It is still in the experimental stage, but it is reported that the tests so far have been satisfactory.—Frank E. Guptill, who has just returned from working in the Philippines for two years in connection with White & Co., of New York, was in Boston early in December for a brief visit, and made a call upon some of his old friends.

1897.

JOHN ARTHUR COLLINS, *Sec.*, 67 Thorndyke Street, Lawrence, Mass.

Albert E. Kimberley was married on November 19 to Miss Helen Price, of Bryden Road, Columbus, Ohio. Mr. Kimberley is engaged in special experimental work in water filtration for the Ohio State Board of Health.—Walter B. Russell, formerly with the New York Central Lines as superintendent of apprentices, is now the director at the Franklin Union, Boston, Mass.—Edwin S. Dodge is at present located at the Villa Curonia, Acetri, Florence, Italy.—H. D. Jackson (VI.) is about completing the manuscript for a book to be published by a well-known New York publishing house, early next year. The exact title has not as yet been fixed, but the text relates to electric railways.—C. B. Breed (I.) has been assisting Mr. Jackson by reading the copy.—Wilfred Bancroft (II.) is general sales manager for the Lanston Monotype Machine Company of Philadelphia.—The secretary understands that this issue of the REVIEW is to be sent to every former student of the Institute, so far as possible. This means that many will receive a copy who have never communicated with the class secretary or perhaps have never had a communication from him. This is not strange, as the majority of the class do not reply to notices, etc. It is this fact that for several years has blocked and made impossible the issuing of a class directory that will be of any value. In view of the fact of the coming reunion in 1909, let every man who reads these words and who ever was connected with '97 send a note to the secretary, giving his address, his employment, if married, to whom, and family, if any. He would like to make this column full of news every issue, but gathering items of interest from men scattered all over the country is difficult, unless he can get co-operation from the men themselves. The above applies to all, but particularly to those who were with us but for a year or less.

1898.

PROF. C.-E. A. WINSLOW, *Sec.*, 157 Walnut Street, Brookline, Mass.

Bodwell was married on the evening of Thursday, October 1, to Miss Henrietta Hilbert Harrison, daughter of Dr. and Mrs. Henry Hilbert Harrison, at 81 South Front Street, Wheeling, W. Va. —Strickland is now with the American Radiator Company as mechanical engineer, at the Detroit plant, under E. A. Sumner ('97), manager, and Anthony ('98), who is superintendent. The combination ought to make things warm.—The Seward (Alaska) *Gateway* of Aug. 1, 1908, had the following reference to Pillsbury: "Dawson: Major W. R. Richardson, in charge of road construction in Alaska, and Captain Pillsbury, assistant to the major, passed through Dawson, on the 'Sarah,' bound for the lower Yukon. Major Richardson goes to Nome, and Captain Pillsbury will stop at Circle. George Pulham is at Circle, in charge of the road work in that district. Captain Pillsbury will sever his connection with the road commission shortly, to go to West Point, where he will be an instructor. He enjoys the honor of having the highest general average of any student that ever passed through West Point in the engineering course."—Peckham writes as follows from the F. W. Woolworth Company Five and Ten Cent store, 1020-1024 Market Street, Philadelphia: "Enclosed please find \$2 for copy of class book just received. It is the first one I have had, and I shall certainly wish to have it come to me each year. Shall also be glad to furnish a little more information concerning the writer. Although I did not finish out with the boys of '98, I have made good in the business world. I have now the management of one of the four largest stores in our syndicate of more than two hundred, and my present address is Philadelphia, where future communications may be sent."—Steffens writes from Johnson City, Tenn., where he is at work on the construction of the Carolina, Clinchfield & Ohio Railway: "I am glad to receive copy of the class book for this year. The committee deserve the thanks of all for the time and thought spent in compiling and publishing this valuable information. I read with much interest what our fellows are doing, and the general average may be considered as fairly high. Those of our class who hover around the shadow of the old buildings cannot appreciate the enjoyment of the distant ones in reading of the successes of the old familiar names. We are busier than ever now, trying to open this new road at the earliest possible date. When we are actually operating over the wonderful line, in and out and through

mountains, I hope that you may be able to pay us a visit. This climate is truly splendid."—The first informal reunion for the winter was held at the new Tech Union on Trinity Place on the night after Thanksgiving. Humphrey gave his famous lantern talk about the opening of the Cherokee strip in Oklahoma. Humphrey, by the by, had a capital article on "Automobile Selfishness" in the November *Atlantic Monthly*.—Godfrey's novel, "The Man who ended War," was among the "six best sellers" in Boston during the early weeks of December.—Cotter was married Tuesday, November 17, at Melrose, Mass., to Miss Lavinia Wilson Smallwood, daughter of Mr. and Mrs. Thomas Smallwood. Mr. and Mrs. Cotter will be at home on Wednesdays after February 15 at 12 Harvard Street, Somerville.—Long sends a change of address to 49 Butler Street, Kingston, Pa.—Franklin's address is now 181 West 135th Street, New York city. '98 men will be sorry to know that on August 14 last he lost his youngest son, Gordon Ordway, aged one year and six days.—Priest sends a new address, 30 Church Street, New York city.—Allston Sargent has been very busy in the movement for a joint club-house for alumni of Amherst, Brown, Dartmouth, M. I. T., Wesleyan, and Williams in New York. He is chairman of the Joint Committee from the various alumni associations which has the matter in active charge.—At the second annual convention of the Illuminating Engineering Society, held at Philadelphia, October 5,

Messrs. J. R. Cravath and V. R. Lansingh presented "The Calculation of Illumination by the Flux of Light Method." Their method, an adaptation of earlier proposals, depends primarily in finding the total flux of light thrown out, between certain limiting directions, by the light source with its shades, etc. The unit of luminous flux, the lumen, has been already defined as that passing from a 1 candle power source to an area of one square foot at a distance of 1 foot from the source. This area also has an illumination of one candle-foot. Average candle-feet may be determined by dividing total lumens received by the area in square feet. Total lumens emitted by a source are numerically equal to 12.57 times the mean spherical candle-power, from the relations of solid angles. The authors show graphical means of easily finding the total lumens emitted by a source in the direction of the lighted area. This figure divided by that area gives the desired value of average illumination. The effect of ceilings and walls in reflecting light not thrown in the direction of the lighted area is neglected.—*Engineering News*.

—H. W. Jones writes as follows from San Francisco, under date of November 20:—

I am just sending you a few bits of news of myself before leaving on a

tour around the globe. I was mighty sorry that circumstances prevented me from attending the reunion of the class this year. I know only too well what I missed, and, worst of all, it is missed forever, but we can't help those things once in a while. I am already planning to get there on the occasion of the 15th,—rather a long ways to look ahead. My brother also missed it, I see, as his name was not there, and it seems as if the Jones family fell down in patriotism; but, as I believe he sailed for Europe a day or so after the meeting, I presume he found it impossible to get there.

A few months ago, when I was in Honolulu, I looked up Norman Watkins of '98, Course V., and we had a small reunion on the spot, even though there were only two of us. He took me around the country for several hours, and we passed a very pleasant day indeed. He seems to be doing very well, and is happy and contented. He sent his regards to all back in Boston in case I got there before he did.

I leave here on the 5th of next month for a trip around the world, visiting China, Burmah, India, Ceylon, Egypt, Europe, and *Broadway*, New York! I expect to represent the army at the forthcoming meeting of the Bombay Medical Conference, and to read a paper there about the latter part of February. I am planning to pass some time with my younger sister in Germany (she has been there nearly three years now). Then I shall spend a few weeks in England with some friends, and expect to reach Boston about the first of June. After that I have to go to Washington for an examination for promotion, and then I don't know what will be the next step. I shall see you in June if all goes well and I am not lost overboard from some of the numberless "windjammers" and "limejuicers" I shall undoubtedly embark on during the next few months.

—'98 men will greatly regret the sad news that Herbert F. Cobb (Course II.) died in Chicago on Wednesday, December 2, from typhoid fever. He was buried at Newton, December 6, Clifford, Coburn, and Blanchard being among the pall-bearers. Cobb was connected with King, Bridge & Co. in Chicago. He left a wife and one son, ten months old

1899.

HERVEY J. SKINNER, *Sec.*, 93 Broad Street, Boston.

Mr. and Mrs. John W. Woollett are entertaining a new arrival at their home in Albany, N.Y., a young son, born on December 5.—An interesting letter was recently received from James A. Patch, who is professor of chemistry in the Syrian Protestant College at Beirut, Syria. Patch writes of the conditions in that country as follows:—

We are in a part of the world where things are doing nowadays. "Ha-

reeyeh" (liberty) is the great cry. We haven't yet become used to the new order of things. Daily newspapers sold on the street, telephones, free speech, no spies,—it isn't natural. A fine study in psychology was offered by the effect of the proclamation of liberty on the various peoples which make up the Turkish empire. Everywhere the most noticeable effect was the renewal of amicable relations between the Moslems and Christians, who for more than three decades have been pitted against each other as a government policy. To see a Moslem sheik embrace a Christian bishop before the assembled multitude, and call him his brother, was a sight that some of us never expected to see.

The coming months are going to be a period of severe testing for an empire which has been degenerating so long. Our sympathies are all with the Young Turks. There are sturdy men among them. Many we have come to admire by association with them.

Last summer Patch was appointed as consulting chemist with a commission sent by the Board of Health of Constantinople to settle upon a suitable place for a quarantine station for retaining the returning Mecca pilgrims. The party travelled within one hundred and fifty miles of the sacred city of Medina and were among the first foreigners to penetrate that portion of Arabia undisguised. Patch has also designed a sewage filtration system for the college buildings. The system is the first thing of its kind in that part of the world.—Barry writes that he is still working in the Pennsylvania Railroad tunnels under the North River. The compressed air work is done, and the concrete work is being pushed rapidly ahead.—Swan has returned to the Institute after a year's leave of absence. He has been taking up graduate work at Harvard, and has received the degree of Master of Science.—Heckle was in town during the early part of November, visiting old acquaintances.—C. A. Smith, of Atlanta, Ga., is the happy father of a son, born Nov. 17, 1908. The young man bears the name Carol Mosman Smith.—H. L. Morse called on his Boston friends recently. Morse, who is a first lieutenant in the Coast Artillery Corps, is still located at Fort McKinley, Portland (Me.) Harbor.—Rood is general manager of the Independent Powder Company of Missouri, and is located at Joplin, Mo.—Rickards has resigned his position as bacteriologist of the Boston Board of Health, and has gone to Columbus, Ohio, to take charge of the laboratory of the Ohio State Board of Health. Rickards has been very successful in Boston, and a high compliment was paid him by the efforts of the present board to retain him in Boston. His new work offers a much broader field, and in addition to the bacteriological laboratory he will have charge of another laboratory, devoted to water and sewage problems.

1901.

R. L. WILLIAMS, *Sec.*, 30 Waban Hill Road, Chestnut Hill, Mass.

Harold B. Wood is now manager of the Gifford Wood Company at Hudson, N.Y. He was married in 1902, and has one child, William P. Wood, born in 1905. Wood has written a series of articles for a trade journal on "Modern Methods of Harvesting Ice."—W. Fred Davidson is located with the Pennsylvania Engineering Works, New Castle, Pa.—A. W. Higgins may be found at St. Louis, Mo., where he is chief engineer of the E. H. Abadie Company. He has one daughter, born March 10, 1907.—Mr. and Mrs. Charles Ripley, of Boston, have announced the engagement of their daughter, Miss Helen, to Mr. Frederick G. Clapp, formerly of the United States Geological Survey, but now senior partner in the firm of Clapp & Bee, Pittsburg, Pa. Clapp has been recently making an expert examination of oil and gas properties for various companies in Pennsylvania and West Virginia. The firm has proved a success from the start.—W. J. Sweetser writes from Burlington, Vt.:—

I am at present surrounded by the Green Mountains on the east and south, by Lake Champlain and the Adirondacks on the west, and by Lake Champlain and the Green Mountains on the north, and I am completely hemmed in by the M. E. students *et al.* in the University of Vermont. Professor Robinson, who is in charge of the department here, has taken a yearly leave of absence, and I have undertaken to keep the boys busy from other things while he is away.

—"Mr. and Mrs. William Berry Hughes announce the marriage of their daughter Emma Jane to Mr. Norman Locke Skene on Wednesday, October the twenty-eighth, nineteen hundred and eight, Bedford, Massachusetts."—Chester N. Chubb is superintendent of the Sioux Falls Gas Light Company, South Dakota.—F. W. Freeman is general manager of the Ætna Woollen Mills. He is married and has two children.—John A. Trott is superintendent of the Riverside Boiler Works.—Francis B. Driscoll as traffic engineer for the American Telephone and Telegraph Company is kept busy outlining the traffic requirements for present and proposed types of equipment and standardizing the methods of operation of the Bell Telephone Companies throughout the United States and Canada.—The following changes in address have been received: Anthony W. Peters, care of L. N. Fornum Company, Dumner, Vt.—Charles E. Martin, 27 Hewins Street, Dorchester Centre, Mass.—H. Macneil, Box 54, Chipman, N.B.—E. P. Fleming,

Garfield Smelter, Garfield, Utah.—F. S. Clapp, 610 Fitzsimons Building, Pittsburg, Pa.

1902.

F. H. HUNTER, *Sec.*, 75 Park Street, West Roxbury, Mass.

On the 19th of November an informal dinner of the class was held at the Hotel Plaza, Boston, with twenty-one men present. During the dinner there were songs, also a brief talk from the secretary upon the affairs of the class, and a very interesting word from "Doc." Williams upon the new Tech Union and its effect upon the student life of the Institute. Williams urged all members of the class who could do so to drop into the Union for lunch or dinner, and see for themselves the good it is doing. After the table was cleared, there was a vaudeville entertainment, which was followed by songs and stories. Those present were Ames, Ballard, Chalifoux, Collier, Finneran, Hall, Hooker, Hunter, Mahar, Manley, Mardick, Nickerson, Patch, Ritchie, Robinson, Jimmy Smith, Stillings, Trowbridge, Walker, Doc. Williams, and Bill Williston.—The number of weddings taking place among our class indicates a wave of prosperity.—E. S. Baker was married on October 21 to Miss Grace Bentley Lindley, of New Haven. Ned and his bride are making their home at 52 Shepard Avenue, East Orange, N.J.—Nickerson's many friends were surprised to receive the announcement of his marriage, which took place upon the same day as Baker's. The now "Mrs. Nick" was Miss Florence Gertrude Sawyer, of Boston. They will be glad to see their friends at 108 Winthrop Road, Brookline.—Dick Reed is another member of the "Bachelors' Alliance" who has deserted. On November 9 he wedded Miss Eleanor Wilde of Canton, Mass. The ceremony took place in Chicago, where the happy couple are now residing.—On November 18 Magrane married Miss Monica Markey, of Brooklyn. The wedding, which took place at the Church of St. Francis Xavier, was followed by a reception at the home of the bride's parents, 156 Eighth Avenue, Brooklyn. Mr. and Mrs. Magrane will reside at 63 Rawson Road, Brookline, Mass.—From Portland, Ore., MacNaughton reports the birth of a son, Boyd MacNaughton, who arrived last May. On the occasion of Dean Burton's recent visit to Oregon and Washington the Technology Club of Oregon was formed at Portland, and "Mac" and his partners, Raymond ('02) and Lawrence ('01), were actively interested.—Another '02 man should shortly be a member of this youngest

Technology Club, for H. F. Daly, who has been in Wakefield, Mass., for the last two years, is returning to his former residence at Portland. His address after January 1 will be 222 Failing Building. On his way from Boston, Daly went through New Orleans, and took a side trip of nearly a month through Mexico.—H. E. Bartlett has left Boston for Washington, D.C., where his address is 1626 S Street.—Pember has moved his residence from Johnson City, Tenn., to Bristol, Va. He still maintains offices in both cities, and reports a growing business in both architectural and engineering lines.—Galahar reports a daughter born on November 3.—The firm of Sherman & Edwards has dissolved partnership, Sherman going on at the same address. Edwards is shortly going to Jamaica for a few months to make some investigations in his line of work.—The engagement of Lowe to Miss Natalie Wells, of Fitchburg, was recently announced.—About the first of the year a general circular will be sent out from class headquarters, giving a report of class affairs up to date.

1903.

FREDERIC A. OLMSTED, *Sec.*, 93 Broad Street, Boston, Mass.

The first informal reunion of the members of the class in the vicinity of Boston was held at the New Tech Union, Saturday evening, December 12. President Critchett, of the present Senior Class, was with us as our guest, and told us of the many changes that are now taking place among the undergraduates of the Institute. The evening was enlivened by many songs, and was the best yet. Nutter told of the work which is now in progress on the Class Record Book, and much interest was shown in the coming publication. The men present were: Aldrich, Atwood, Bartlett, Capelle, Clark, Comer, Cushman, Gleason, Gould, Loughlin, Mason, Newman, Nutter, Nyhen, Olmsted, A. P. Rice, and Swett. It was decided to have the next reunion on the evening of January 30, and Bartlett, Clark, and Gleason were appointed as a committee to have it in charge.—Swett and Yerxa spent the summer together in Europe. They went to Liverpool, London, Paris, up the Rhine to Switzerland, into Italy and to Venice, back through the Dolomites to Munich, Nuremberg, Berlin, and Holland, and then to England. They had a very enjoyable trip, and Swett says that it was hard to get Yerxa away from Paris. Yerxa is now with the Miami Copper Company at Globe, Ariz.—Hayden writes from the Philippines that he expects to remain there a couple of years longer, and sends

his regards to the fellows. He is now district engineer at Albay, Albay.—Gould is engineer with the New England Telephone and Telegraph Company in the Manchester (N.H.) district.—Gilker is with the same company as traffic chief of the Boston office.—Mears is now sales manager for the Ellis-Chalmers Company, with headquarters in Dedham, Mass. He expects to be in Chicago until April.—Picard is president of the Picard-Law Company, consulting and analytical chemists, with office and laboratory at 231½ Marietta Street, Atlanta, Ga.—Hamilton is at present studying law in the New York Law School, having recently resigned from his position as first lieutenant in the United States Marine Corps.—Babson is now vice-president of the H. and Rowe Calk Company, of Hartford, Conn.—Bacon is treasurer of the National Fruit Products Company, 35 Batterymarch Street, Boston.—H. S. Baker is assistant engineer in the subway division of the Bureau of Engineering in Chicago.—Barrows is now patent attorney with the United Shoe Machinery Company, Boston.—Fletcher is a technical publicity writer in the sales department of Westinghouse Electric and Manufacturing Company at East Pittsburg, Pa.—Fogg was married July 15 to Miss Katherine E. Knight. He is now an instructor in civil engineering at the Pennsylvania State College.—Foster made another change in October, when he left Covington, Ky., to assume the duties of superintendent of the Minneapolis Gas Light Company, Minneapolis, Minn.—Haskell has accepted a position as scientific assistant in the lighthouse service. He is located at Tompkinsville, N.Y.—Gaenslen took a position as assayer with the San Rita Mining Company, San Rita, N.M., September 1.—C. F. Green is resident engineer with the Western Pacific Railway Company, at present located at Long Valley, Lassen County, Cal.—Manahan is now engaged as milling engineer with the Milan Mining and Milling Company, West Mian, N.H.—Mulherin is in charge of the estimating department of the Vulcanite Paving Company, with offices in the Land Title Building, Philadelphia.—Pulsifer is in business at 817 Oak Street, Kansas City, Mo., as a consulting mining engineer.—Sears was married October 27 to Miss Helen Jane McCarthy, and is now living at 6 Brown Terrace, Jamaica Plain, Mass. Mr. and Mrs. Sears have the best wishes of the class for a happy partnership.—Tolman is now instructor in theoretical chemistry at the Institute.—Regan is head of the department of mathematics at the Charlestown (Mass.) High School.—Winchester is assistant manager of the Gabriel Concrete Reinforcement Company, 616 Penobscot Building, Detroit, Mich.—Work on the Class Record Book is now making

good progress, and the returns are coming in fairly well. By the time the REVIEW is issued, the second call will have been sent out to all members of the class, and it is hoped that there will be a prompt response with information regarding many whose present locations are not known.—It is with deep regret that we have to announce the death of Claude P. Nibecker, who died in Pittsburg, November 10. The funeral was held in Westerly, R.I., November 12. Nibecker's death was the direct result of a hemorrhage or lesion of the brain, but the real cause was overwork. He was the first secretary of the graduate organization, and his death will be greatly lamented by all.

1904.

R. A. WENTWORTH, *Sec.*, Saylesville, R.I.

M. L. EMERSON, *Res. Sec.*, 161 Devonshire Street, Boston, Mass.

A 1904 dinner was held at the new Tech Union on Thursday evening, December 3, under Sweetser's management. The following men were present: Allbright, Chace, Elliott, Comstock, Galusha, Gerry, Hall, Haley, Hartshorne, Haynes, Kalmus, Parker, Rockwood, Severy, Stebbins, Stevens, Sweetser, Tripp. Galusha gave quite a talk on his delightful European trip of last summer, which occupied several months. Kalmus and Comstock spoke very interestingly of their experiences in England and Germany in 1905. Charlie Haynes did his duty at the piano. The reorganization of the Alumni Association was discussed, and informal nominations were made for class representative on the proposed council. It was agreed to have another dinner about the middle of February. Class dues (\$1) for the year 1908-09 are now payable, which fact was the point of a circular letter sent to all '04 men on December 7. If this letter has not yet reached you, it is because we have not your correct address.—Harry Stevens underwent an operation for appendicitis which kept him at home for two months, but he was able to get out to the recent dinner.—Severy is back in Boston with the Boston & Albany Railroad. His address is 201 Brighton Avenue, Allston.—Allbright is also in Boston with the J. R. Worcester Company, 79 Milk Street.—Arthur Harrigan is recovering from a severe illness. His present address is "The Oaks," Windsor Park, Chicago.—According to *The Tech*, "Mr. Comstock, of the Physics Department," was one of the ushers at a recent Cleofan reception.—Galusha is working on some electric railroads in Eastern Pennsylvania

for Stone & Webster.—Phinney has just become draughtsman in the signal department of the Chicago & Northwestern Railway at Chicago. He is living at 241 South Winchester Avenue, Chicago.—Joe Crowell is the proud father of a daughter, now a couple of months old.—P. M. Smith was married at Grosse Pointe Farms, Mich., on Wednesday, November 4, to Miss Alice May Schmidt. On the following Saturday they left New York for Dole (Jura), France, where Pret is to be permanently located with the American Radiator Company.—Letters from various classmates speak most enthusiastically of Dr. Maclaurin's election. In this connection Willard shouts (to his stenographer), "Long live the King!"—Holcombe writes from Washington:—

There is no news. All the '04 men here are too well satisfied to leave and too busy to marry. Back in September, before Wright fell off his flying machine, all Tech men who knew Weaver had free transportation to Fort Myer for the matinée, and during the campaign we were regaled with free lunches at Republican Headquarters, but, since the people ruled Bryan out, the Patent Office has been working overtime to keep up with prosperity and we haven't even followed the football scores. The Tech Club is planning a blow-out for some time in January, when we hope to get Prexy-elect here to receive our assurances of esteem and confidence. All the fellows I have talked with are enthusiastic over the choice, and seem ready to back up with something more than cheers any move he may undertake for a bigger and better Tech.

—P. M. Paine was in Boston a few days ago, just back from his forestry work in Denver.—New addresses are: Miss Eliza Codd, 25 Chestnut Street, Boston.—George A. Curtis, 400 Ford Building, Boston.—W. D. Estes, Box 1035, Hamilton, N.Y.—Reginald Hazeltine, Hub Foundry Company, 251 A Street, South Boston.—W. A. Kemper, Barge Canal Office, Triangle Building, Rochester, N.Y.—William C. Lounsbury, 1024 John Avenue, Superior, Wis.—Hubert Merryweather, care Walter G. Merryweather, Spokane, Wash.—R. B. Pendergast, Citizens' National Bank Building, Los Angeles, Cal.—Arthur O. Roberts, Manchester, N.H.—Clark D. Simonds, Manchester, Vt.—F. N. Turgeon, Juragua Iron Company, Firmeza, Cuba.—The result of a remarkable experiment made by Dr. Kalmus has attracted considerable attention all over the country. A patient having a sore that was diagnosed as lupus was treated by him with ultra violet light in collaboration with Boston physicians. The sore had been unaffected by ordinary forms of treatment available, including X-rays and surgery, and it was greatly increasing in size. A complete cure was effected by Dr. Kalmus's treatment, and another patient suffering

from the same disease is now being treated in one of the Boston hospitals. Dr. Kalmus is extending his experiment further, and is attempting to determine the effect caused by varying the metals between which the spark is produced, and in determining the wave length of the light that produced this effect and the chemistry of the changes brought about.

1905.

GROSVENOR D'W. MARCY, *Sec.*, 246 Summer Street, Boston, Mass.

On October 1 William Green and Miss Ruth Churchill, of Lowell, were married.—Thomas Shaw and Miss Ada Foster Kennedy were married at Plymouth, Mass., on October 8.—Preston Morris Smith and Miss Alice May Schmidt were married at Grosse Pointe Farms, Mich., on November 4. They have gone to Dole (Jura), France, where Pret is to be with the Compagnie Nationale des Radiateurs, or the foreign manufacturing department of the American Radiator Company.—William H. Beers, Jr., reports the arrival of William H., the third, with an avoirdupois of twelve pounds. Beers, who is biologist in charge of the Columbia (S.C.) filtration plant, wants to know what the population of the class is now at this present moment. This is a hard thing to determine, but we can safely say that the yearly increase is still increasing yearly. We will take a baby census at the big reunion next June, where special auto-go-carts will be provided for their accommodation.—Herman Eisele has gone into business with Juengling ('06), as mechanical and structural designers, the name of the concern being Eisele & Juengling, Century Building, Cleveland, Ohio.—Chester Butman is studying theoretical physics and advanced mathematics at Clark University, Worcester, Mass., and reports that he is enjoying the work very much.—William H. Keen is head chemist with the Firth-Sterling Steel Company, Washington, D.C.—John Ayer is at Rumford Falls, Me., working on a new mill for the International Paper Company.—H. C. Mitchell is instrument man at Tupper Lake, N.Y., for the New York State Water Supply Commission.—Harry Nabstedt is superintendent of construction with the Ambursen Hydraulic Construction Company, and has just returned from Woodstock, Vt., where he has been building a storage reservoir dam, 265 feet long and 25 feet high, of reinforced concrete.—Walter A. Clarke spent his vacation in the Maine woods, where he succeeded in bagging two deer. One of them was a little one, however, according to Stebbins, who also comes from Fore

River, and he put it back. Early in December Clarke accepted a position as estimator with the Maryland Steel Company, Sparrows Point, Md., and upon leaving was given a surprise farewell dinner by sixteen of the Fore River fellows, at Bova's.—Alden Merrill and Bill Spalding made a trip in October from Buffalo to the copper mines at Houghton and Calumet, Mich., on an ore boat. Bill wrote:—

The copper country is certainly a wonderful place. You wander into 'most any building, and find it crowded up to the eaves with a great giant of an engine, bigger than you ever dreamed of before; you look down a shaft, and are told it is over a mile deep; you visit a stamp-mill, and your head swims at the figures given you about the tonnage, gallons of water pumped, etc. Coming home, we were remarkably fortunate in the weather we had and in escaping from the schemes of the negro cook, who was trying to kill us by stuffing us to death with good things. On board one gets bit by the sleep habit, and I'm too lazy to attempt to write more now. Besides, I only had twelve hours' sleep last night, and my after-breakfast nap was cut short by the dinner bell, so I must begin to catch up a little on this sleep game.

—The secretary had a short note from Bill Motter, who had just got back to Orogrande, N.M., after being out two and a half months in the Sacramento Mountains on a location survey.—R. D. Farrington, member of the Massachusetts bar, has left the United Shoe Machinery Company, and has opened a law office on State Street.—Doc Lewis, in the new Industrial Research Laboratory, is trying to find out what makes tin plate rust, or, rather, what will make it not rust.—Andrew Fisher is with the Amoskeag Manufacturing Company at Manchester, N.H.—The engagement has been announced of Miss Marion Keene Tufts, of West Medford, to George W. Perry.—Arthur C. Long is now with the Marquette, Mich., plant of the E. I. du Pont de Nemours Powder Co.—Leonard T. Bushnell writes from Seattle, Wash., where he is secretary of the Mill Owners' Sprinkler Company:—

Dean Burton was through here a week ago, and stirred us all up to a high pitch of enthusiasm about the Institute, and more particularly the big reunion next June. I hope that we will be able to get all the 1905 men together. Be sure and save a place for me, *as I am coming if I have to walk.*

—Catch this spirit, come yourself, and urge other men who may be in doubt to come. If possible plan to go on the '05 Camping Trip, arrangements for which are being made. Also, '05 man, if you happen to have a Tech man for a boss, put your name on the

vacation schedule early.—Arthur J. Amberg and Miss Marguerite Elizabeth Brosseau were married on October 14 in Chicago. They will be at home after January 6, at 1515 Montrose Boulevard, Chicago, Ill.—Edward A. Barrier and Miss Isa Duvey, of North Cambridge, were married November 24. Barrier is with the Factory Mutual Fire Inspection Company, 31 Milk Street, Boston.—When the fall cross country handicap 8-mile race was held at the Institute, December 5, E. H. Lorenz came up from Hartford to run with the boys. He proved that he was still in good shape by finishing within 44 3-5 seconds of the previous record, which he made himself in 1904. His record was broken, however, by Howland, 1908, whose time of 46 minutes 23 seconds was 32 seconds less than the old mark.

1906.

GEO. F. HOBSON, *Acting Sec.*, 164 Holyrood Ave., Lowell, Mass.

I. *On the Part of the Secretary.*

On looking over the class catalogue, the secretary was greatly astonished to find how few fellows are living in the vicinity of Boston. Last year there were at least fifteen men to be counted upon for the informal dinners, while this year there are barely six men who live near enough to attend these gatherings. Hence the only way to get class news is through correspondence, and every fellow is strongly urged to drop a note to the secretary every few months. The notices have been sent out announcing the semi-annual dinner, calling for information about the Class Baby, and, last, but not least, calling for the payment of 1909 class dues. We hope replies will be sent in as soon as possible. The Executive Council announces the appointment of Mr. Frank Benham to the post of assistant secretary to complete the term of Mr. W. J. Nicholas, who has left Boston permanently. Our Philadelphia correspondent, Mr. Tillson, writes that an informal dinner of the Technology Club of Philadelphia '06 made a fine showing, with ten men present, as follows: E. S. Chase, Cheney, Dean, Lettig, McGinnis, A. C. Taylor, Terrell, Tillson, Walsh, and N. A. White. He also informs us that they hope to round up a "good" gang of '06 Quakers for the big reunion next June.

II. *Personal Announcements and Notes.*

One of the fellows writes that Charles Hawkes is married and lives in Providence. The same correspondent tells us that L. A.

Thompson is married, and is now advising all his friends to do the same.—The engagement of C. D. Richardson to Mary G. Stone, of Boston, was announced in September.

III. *Class News and Changes of Address.*

S. T. Carr is at present at the Westinghouse Electric Company at Pittsburg, but is soon to be transferred to their sales department at San Francisco, Cal.—Jimmy Banash, who is just out of the hospital in Chicago, writes as follows:—

There are very few '06 in this neighborhood, but I see Henius (V.) quite often, as he lives here. I have also seen Mann on the street several times. Cheney (II.) is at South Chicago, I believe.

While I was in East Aurora, N.Y., on my vacation, I telephoned to Morey (Course V.), and he delicately admitted that his wedding was about three days off, and that Norton was there to officiate as best man. On the strength of that I went in to Buffalo, and Morey staked us to a dinner at the University Club.

—Herbert A. Terrell has resigned from the Supervising Architect's Office in Washington, and is now with the air-washer department of the Warren Webster Company. His present address is 317 North 6th Street, Camden, N.J.—W. A. Hardy is now living 1635 Florida Avenue, Washington, D.C., and E. L. Wilson is living at 1201 Q Street, N.W., "The Leumass," Washington, D.C.—George C. Noble resigned from Supervising Architect's Office, July 1, 1908. His present address is Obras Publicas, Construcciones Civiles, Havana, Cuba.—Walter Trask is located in Denver as assistant to the manager of the Denver Engineering Works.—Maxwell A. Coe, Roxton Pond, P.Q., Can.—Ogden R. Adams, 1014 1st Avenue, South Seattle, Wash.—Colly Dill, 80 Rector Street, Perth Amboy, N.J.—W. F. Englis, care J. K. Dimmick Company, Land Title Building, Philadelphia, Pa.—R. J. Barber, correspondent for Course III., writes the following items of interest: "Ralphy" Thayer has just left Boston to take a position with Candelaria Mining Company, San Pedro, Chihuahua, Mex.—Marden Hayward is now in the Garfield Mill of the Utah Copper Company at Garfield, Utah.—Tillson accounts for the '06 Philadelphia "bunch" as below: C. R. Lettig (VI.) is with the sales department of the Westinghouse Electric Company. Address, 1722 Green Street, Philadelphia, Pa.—A. C. Taylor's address is now 3319 North Bouvier Street, Philadelphia, Pa.—C. S. McGinnis is teaching second-year physics at the University of Pennsylvania. Address, 3332 Walnut

Street, Philadelphia, Pa.—E. S. Chase is chemist-in-charge at the sewage disposal works at Reading, Pa. Address, 200 North 4th Street, Reading, Pa.—H. W. Dean and P. E. Tillson have found that it is cheaper to move than pay rent. Their new address is 419 Y. M. C. A. Building, Philadelphia, Pa.—The secretary was much surprised to receive a letter from H. A. Ginsburg from Washington, D.C. He is stopping with D. C. Davis who was recently married and has settled in Washington. Ginsburg's new address is National Bureau of Standards, Department of Commerce and Labor, Washington, D.C.—A letter was also received from S. C. Allen, 81 Lake Avenue, Rochester, N.Y. Allen is one of the few '06 men who are in business for themselves.—H. H. Brown is becoming what might be called a "multi-editor." He is not only editor of the *Boiler Maker*, but also of the *International Marine Engineering Journal*.—"Bunny" White is now holding down a government job at League Island Navy Yard.—"Ned" Rowe writes a breezy letter:—

I am due for a change of address, as I haven't been in West Newton since last July, when I came here to New York to become one of the Holograph Company's "illuminating" engineers. . . .

G. C. Furness I have just located in Niagara Falls, doing electric furnace work, but haven't heard from him yet. . . .

At the electrical show in Madison Square Gardens, on October 10, I happened to meet Miss Ruggles, and learned that she had resigned from the General Electric Research Laboratory to enter the ranks of the married people. I've heard rumors about the other Cleofans, too!

—Miss Eleanor Manning also sends in some news of the Cleofans, but nothing as startling as above.—Miss Helen R. Hosmer (Course V.) has left the General Electric Research Laboratory at Schenectady and is with Robert S. Weston, expert chemist at 14 Beacon Street, Boston.—Miss Cederholm has left Wellesley College, where she was assistant in chemistry, and has gone to the Maryland College for Women in Lutherville, Md. She is to teach science.—Miss Mildred F. Wheeler, who has been at Mt. Herman for the past three years, has taken a position in the Springfield Technical High School to teach chemistry and physics.

1907.

ALEXANDER MACOMBER, *Sec.*, 83 Newbury Street, Boston.BRYANT NICHOLS, *Res. Sec.*, 138 Fremont Avenue, Everett, Mass.

I. *On the Part of the Secretaries.*

The occasion of the alumni dinner, on January 14, offers an opportunity for a number of the fellows getting together, and it is hoped that all in the vicinity of Boston will make great efforts to be present. The effect of the local correspondence scheme recently adopted has had a very healthy influence in increasing class news, and the Chicago and Pittsburg divisions have held informal dinners, as will be noted under the letters following. All others take notice! Plans will soon be under way for '07's share in the big reunion next June, and we must have the support of all.

II. *Personal Notes and Changes of Address.*

The following was clipped from the *Boston Record*:—

Professor Clarence Howe, of Boston, who went down to Dalhousie University, Halifax, to teach in the civil engineering department, has already become very popular in the college. The *Dalhousie Gazette* speaks in the highest terms of his ability and scholarship. During his student days Professor Howe had some experience in municipal engineering in some of the towns in the neighborhood of Boston.

—Clifton N. Draper is junior chemist with the United States Geological Survey in Pittsburg. He is working on research with petroleum, has a fine laboratory, and is enjoying himself. He is down on the city, though, and says it doesn't hold a candle to Boston. His address is United States Geological Survey, 40th and Butler Streets, Pittsburg, Pa.—Harry Moody is in the same place in a similar position.—The Scranton Gas & Water Company of Scranton, Pa., are putting in two mechanical filtration plants, one of 5,000,000 gallons capacity, and the other of 30,000,000 gallons. George R. Taylor, chemist and bacteriologist for the company, has been put in charge of them. Mr. and Mrs. Taylor are welcoming a daughter, born May 12, 1908.—John Rehn writes that he is mixing paints in Easton, Pa.—Kenneth G. Chipman is with the Geological Survey in Ottawa, Can. He spent last summer on Vancouver Island, off the British Columbian coast. About September 15 he started back across the continent, and began work in Ottawa on the 1st of October. He is doing photo-topographic work in addition to geological work, and is fast becoming a civil engineer as well as a

mining engineer.—So far as we know, only one member of the class has been married since the last issue of the REVIEW. The fortunate man is J. A. Davis, who married Miss Mary L. Cadwell, of Atlantic City, on Oct. 29, 1908.—L. L. Allen is clerk of the Brookline School Committee.—Bob Albro is now with Horton & Hemenway, contractors of Boston, and at present is on a job at Waterbury, Conn.—Lawrie Allen is now with the Boston office of his firm, and living at Auburndale in "that little home of his own."—Bonta is building superintendent for Al. Taylor, architect, of Syracuse, N.Y.—We hear that Shirley Black was recently engaged to Miss Marion Baker, of Lynn, Mass.—Sam Coupal has left California for Alaska, but expects to be East this winter.—Macomber stopped off to see him, when going by his camp this fall, but just missed connections. After seeing the town, we do not wonder Sammy chose Alaska.—H. R. Chase is at 24 Montello Street, Dorchester.—Eaton recently passed the examinations for the revenue cutter service, and is now on the United States steamship "Inca."—Dodge leaves Pittsburg after January 1 for 134 B Street, N.E., Washington, D.C.—Donnewald is superintendent of the Eddie-Cannon Mine, El Paso, Tex.—Dempwolf is studying in Paris, 30 Rue St. Sulpice.—F. C. Elder is now at Columbia University, studying mining.—C. S. Fleming's address is 4430 Winton Road, Cincinnati, Ohio.—F. E. Goodnow is with the Western Electric Company at Chicago.—W. A. Gates, Coxsackie, N.Y.—Bert Johnson is at 104 South 3d Street, Reading, Pa.—"Granny" Jones is now head chemist for the Washington Filtration plant.—Kolatschevsky, we hear, is about to be married at his home in Malta, Greece, and soon expects to return to America.—W. W. Karnan's address is, United States Geological Survey, Pittsburg, Pa.—R. F. Knight is with the Corbin Motor Vehicle Corporation of New Britain, Conn.—J. I. B. Larned gives his home address at Lake Forest, Ill.—J. S. Moore is located at United States Naval Station, Key West, Fla.—Moreland is with D. C. & W. B. Jackson, engineers, 84 State Street, Boston.—B. F. Mills is a civil engineer with War Department, Manila, P.I.—John Mather was recently appointed a second lieutenant in the artillery, and is now at Fort Revere, Mass.—Sam Marx is just now in Boston. Where next?—Naramore holds out at 5003 Washington Avenue, Chicago.—Norton is now a lieutenant in the United States artillery, stationed at Fort Banks.—C. W. Nutter is at Forsyth Street, Chelsea.—Emerson Packard was recently made superintendent of the Haynes-Piper Company of Ayer, Mass.—Eugene Phelps is with Burton Wayne Company, 237 Fifth Street, Louisville, Ky.—V. S. Rood, Holland, Josephine County, Ore.—L. P. Russell, Pittsfield, Mass.

—S. R. T. Very, 410 West End Avenue, New York City.—M. Wyner, 189 High Street, Boston.—W. H. Sage, Jr., who was with the class for a year, graduated from West Point last summer.

—Macomber has recently returned from California and expects to make Boston his headquarters for the present.

III. *Letters.*

From T. W. Roby, Jr., just too late for the October REVIEW, was received the following:—

I am still with the McClintic Marshall Construction Company of Pittsburg, being now in the estimating and designing department of the local plant. The company took on something like twenty-five college grads in July, 1907, for a two-year course,—six months in each of the four departments. I was one of the four men who came down from Tech, Van der Stucken being the only other '07 man. I spent four and a half months in the draughting-room, eight in the shops, and will be in my present location till January 1, when I expect to be sent out on erection for the last period, our course ending in July, 1909.

This letter was sent from Wilkinsburg, Pa.—Under date of September 2 came a letter from C. S. Fleming, who is with Proctor & Gamble Company, Cincinnati, Ohio:—

We have just recently enlarged and refitted our soap powder department, and I have succeeded a former Ohio State man who had had charge for about a year. That meant new machines to work and new help to train. So I have had my hands full the last month. . . . We pack about 60,000 to 80,000 pounds of washing powder a day. . . .

I was married last New Year's evening, and since the middle of January have been keeping house at Winton Place, a station near here. . . . My home is at 4430 Winton Road, Cincinnati.

—Bert D. Johnson writes from 104 South 3d Street, Reading, Pa., in a letter which is not dated, but which was received about the middle of September:—

Two weeks ago I came to this city to work in the draughting-room of the Reading Iron Company. . . . My time has been more of it spent at home than ever I had expected. . . . Six months of the time (since February, 1907) I was at work in the wood pulp industry in Northern and Eastern New Hampshire. . . .

—From Pittsfield, Mass., comes the following:—

My son, Benjamin F. Mills, accepted a position under the United States War Department as civil engineer. He was ordered to report at Manila, and sailed from San Francisco on August 1.

CHARLES A. MILLS.

—John G. Barry writes from North Dakota as follows:—

I am assistant State geologist on the United States Geological Survey. In the winter, besides the usual office work, I also teach, in the State University at Grand Forks, mineralogy, economic geology, and petrography. This past summer I have been engaged in work on the areal geology of Pembina and Cavalier Counties, 2,400 square miles. The work is done on horseback. The area is very flat, and the underlying formations are of the upper cretaceous. Exposures occur along deep coulees, and the Pembina Mountains, an old river bluff. The formations have an economic use for cement and brick. Grand Forks is a nice little city, a farming metropolis of 12,000. The whole State is mostly devoted to farming. The State University is situated on the open prairie, two miles west of town, has eleven buildings, and five hundred students. It is quite an institution for a State of this sort.

Sad to state, I haven't been able to find a soul-mate as yet. . . . My work here interests me very much, but I am hoping to get into practical mining as soon as possible.

—On the letterhead of the Cudahy Packing Company, South Omaha, Neb., C. F. Runey writes:—

I am assistant chemist with the above company. Unmarried, with no immediate intentions. My work here is done under the best conditions, this laboratory being fitted out with not only first-class apparatus, but all that is required. My personal work at present consists in the analysis of supplies bought, pharmaceutical preparations, etc. . . .

—F. E. Langenheim, who was with the class one year, writes from Harrisburg, Pa.:—

. . . About three weeks ago (October 14) I had a letter from our Russian classmate, A. T. Kolatshevsky. The letter was mailed in Valletta, Island of Malta, and stated that he was well and lively, and anxious to get back to the United States; also, that he expected to be married about the middle of October, and would make his home for the present in Italy, but that later on would bring his wife to the United States, and perhaps make his home here and go into business. Lawrence T. Walker, of Stoneham, Mass., has been travelling all summer in the British Isles, France, and Germany, and may remain abroad to study this winter. . . .

I am at present assistant engineer with the Water Supply Commission of Pennsylvania. Lately have been very busy making meter measurements on the streams during their low stages during this drought.

—The following is from Bonta:—

I started in with Jim Vedder's uncle,—Merrick & Randall's office, Syracuse, N.Y. Jim is head draughtsman there, and is their best designer. I left them to go to England last July, and have just returned from a de-

lightful visit, where I ran across Walker ('07), and Keyes ('07), who had come over as cattleman on some boat, and was looking for permanent employment in England. I am now head draughtsman and building superintendent with Alfred Taylor (Technology), here in Syracuse, and am settled permanently and quite happily. . . .

—The following is from Rambo and is written on the steamship "Cap. Valano," August 28, *en route* from Rio to Buenos Ayres. Rambo went to Brazil in the spring, to return about the end of the year. After describing a large hydro-electric plant at Rio, he writes:—

I suppose you wonder what the dickens I am doing on this boat. I am on my way to Buenos Ayres. Arrive there some time to-morrow. We are in a pretty bad storm, which has been raging for the last two days, and it has turned very cold since leaving Rio,—from 90 to 35 degrees. . . . Things are pretty dull in Brazil. If the coffee market does not improve, things are going to smash. The openings here are good, but one has to consider the other side, the giving up of the customs of one's country, one's friends and home. . . . I shall probably return to the States about November or December.

—A. L. Burwell's address is now 639 Main Street, Winsted, Conn. He writes:—

I have forsaken New York and the old job for the above letterhead (Burwell Chemical Company, manufacturers of leather dressings, Winsted, Conn.). All my own, too. Give my regards to all the boys.

—Cenedella writes from Milford, Mass.:—

I am at present working for F. A. Barbour, of Boston, on the Milford Sewerage System, and expect to be here until the weather gets too cold for work. I've only been working for him this last month. . . . I expect to land a job on the Baltimore Sewerage System about January.

—"Albert E. Greene, Electro-Metallurgical Engineer." Thus reads the letterhead. He writes:—

I am at present with the Illinois Steel Company as electro-metallurgist. I spent the first eight months after leaving the Institute with a company in California which was developing the smelting of California iron ores in the Heroult Electric Furnace. This line of work has especially attracted me, not only because it is a new and quite undeveloped line, but also because it covers a field of very great importance. It is a line of work and of study that our younger fellows back at the Institute should keep their eyes on. It has possibilities.

As to my future I have not much to say, except that I expect to "get there." I am not married—not even engaged.

—John Frank writes:—

I finally succeeded in rounding up the Chicago, 1907, bunch, and we came together in an informal way at Emil Kuehn's on November 21. We did not take official action of any kind, but all present agreed to the plan of having dinners once a month or thereabouts. Those present were: Naramore, Bennett, J. M. Baker, Crosby, Greenwood, Snow, Bragdon, Lebenbaum (Sp. '06), A. E. Greene, J. M. Frank.

I expect to go South in a few weeks now. . . . I saw Stud Leavell's wife in Chicago a short time ago. Stud had typhoid fever, but he pulled through, and weighs two hundred pounds now. Also, he is getting bald.

P.S.—I might say about the dinner that it was noteworthy for the free use of aqua pura. However, don't blame me. It was not my fault. I believe you know my views on the subject.

—The long-lost is found. Donnewald sends us a letter via John Frank. He is with the Eddie-Cannon Mining Company, El Paso, Tex.

I am superintendent of this company, and am working pretty hard. I have just completed a new head frame and installed a new hoist. I am neither engaged nor married. If you know of a good-looking girl up there in Chicago, send her down quick, because the grub this Chinaman is handing out is H—.

—From far-away Japan comes a welcome letter from Nicholl:—

I am with F. W. Horne, importer of American machinery, and don't know whether I was lucky or unlucky to be left in charge last November, 1907. When one is doing business in Japan, he needs eyes on all sides of his head. But it is a great experience. Of course, you imagine Japan as I did, *i.e.*, a land of flowers, with beautiful geishas running promiscuously about, and with ruby lips ready to kiss. It is quite the reverse. The flowers are actually scarce, and the beautiful geishas have to be hunted. The ruby lips, however, are always ready to be kissed, though the penalty is a smear of rouge. I will enjoy this lazy Far Eastern life for a few years, and I hope it doesn't get into my bones. Yokohama is the largest part of the empire, and is composed of about 180,000 Japanese and 3,000 foreigners. There are lots of sports here, and I have gone in heavily for baseball and tennis. Two weeks ago we went down and cleaned up Kobe. . . . Expect to get over to Tientsin to see Morrill in the spring. An awful hole he has gone to. . . . Best regards to all classmates.

—Dodge had a dinner in Pittsburg, and says concerning it:—

We had a little gathering and dinner here on the 28th of October on the occasion of Granny Jones's visit. Roby, Kimball, Jones, and I had dinner at the Fort Pitt. They reminisced about "Pop" Swain, "Santa Fe" Allen, "Structures," and the like, and I looked on, only guessing what

it was all about. My reminiscences all run along the lines: "Dynamics of Machines," "Machine Design," and similar stuff.

1908.

JOHN T. TOBIN, *Sec.*, Leesville, Va.

RUDOLPH B. WEILER, *Res. Sec.*, 26 Brooks Street, Brighton, Mass.

An informal dinner and reunion of the fellows in Boston and vicinity was held at the Tech Union, Tuesday evening, December 8. Although this was merely a local affair, many came long distances to be with us, and, owing to this sort of spirit, we had an unusually large gathering for such an event, sixty-eight being present. Frederic H. Fay, secretary of the Association of Class Secretaries, was the guest of the class, and he traced the history of the Alumni Association and gave an outline of the coming reunion. After the dinner the business meeting was called to order by "Pop" Gerrish. It was decided to have a committee of five to take complete charge of the '08 end of the reunion. Rapelye, Weiler, Reid, Gerrish, and Osborne were elected to this committee. The matter of drawing up a new constitution, now that the class has graduated, also came up for discussion. It was moved, seconded, and carried that the chair appoint a committee of three to draw up a new constitution and submit it at the next class meeting. Rapelye, Reid, and Weiler were appointed.

Steps were taken to get in line with other classes in the plan for inducing preparatory and high-school boys of exceptional ability to come to the Institute. The usual procedure is to appoint a committee, each member of which corresponds with all the members of the class in his section of the country. The members keep their eyes wide open for the class of fellows wanted,—*i.e.*, those who are leaders in their school in one way or another,—and, when they run across such a fellow, notify the committee member nearest to them. He sees to it that literature is sent to the boy, showing him the advantages of the Institute as a school at which to complete his education. The original class member is, in the mean time, supposed to talk over colleges with the boy and show him wherein the Institute excels. It is expected in this way to induce many fine fellows who might perhaps go elsewhere to come to Technology.

The class voted that nominations for this supervising committee, which should be of three members, should be made by the committee appointed to draft the new constitution, and that the nomi-

nations thus made should be voted on by postal ballot to the secretary in Boston. Appended is the list of nominations, which, it is hoped, the class will vote on immediately. Vote for but three names, and, in so doing, consider geographical position. Address your postal to R. B. Weiler, Massachusetts Institute of Technology, Boston, Mass. Polls close Feb. 20, 1909.

A. G. Place, Boston, Mass.; W. E. Barton, Boston, Mass.; W. A. Adams, Boston, Mass.; H. E. Allen, Wilkesburg, Pa.; G. T. Glover, Lima, Ohio; W. R. Heilman, Evansville, Ind.; H. W. Hoole, Milwaukee, Wis.; J. W. Maxwell, Austin, Tex.; J. B. Sando, Milwaukee, Wis.; J. W. Maxwell, Austin, Tex.; J. B. Sando, Milwaukee, Wis.; J. T. Tobin, Leesville, Va.

It was unanimously voted that the dues for the coming year be made one dollar, due Feb. 1, 1909. Owing to the embarrassing condition of the treasury, it will be necessary to collect the dues at once, so please send one "bone" to the resident secretary. On account of the Reunion we shall need all the funds we can get together.—Harry Webb, speaking for the senior portfolio committee, said that there was a deficit for which the members of the committee are liable. If the few remaining portfolios are sold, there will be a slight balance. Any one wishing one of these portfolios, please send six dollars to Harry Webb or to the resident secretary. Any one wishing the cut used for his picture may have it for fifty cents. This will be refunded if all the portfolios are sold, and every one will receive his cut free.

On October 30 several of the '08 men still at the Institute joined in the Republican Club Parade as a separate battalion. The parade was a grand success, and no signs of any "scrap" were to be seen anywhere. Now get out that pretty calendar you received Christmas, and put a big blue pencil mark around June 7, 8, and 9 to remind you that you have to make your vacation include those days.

J. McGowan, Jr., has left S. C. Keith, and has gone to Camden, N. J. He writes: "Have come down here to this second Chelsea, to be chemist for the Joseph Campbell Company, of condensed soup fame. Look for the street-car adv." A. T. Hinckley and W. W. Karnan have left the State Board of Health. Hinckley is assistant in inorganic chemistry, and is a candidate for an M.S. degree. Karnan is with the United States Geological Survey, Pittsburg, Pa., engaged in fuel analysis.—Charlie Edmonds and Harry Lord have left Blake's. Edmonds has accepted a position with the Home Gas Machine Company, 183-189 East Lake Street, Chicago, Ill.,

and Lord is with the General Electric Company, Lynn, Mass.—L. H. Allen has left the Fore River Ship Building Company, and has gone to Pennsylvania to serve as transitman on a preliminary survey for an interurban railroad from Johnstown to Galitzin. His address is Anderson House, Cresson, Pa.—E. E. Allen is a travelling salesman. Address, 87 Park Place, New York.—G. W. Bailey is with Samuel M. Green, Inc., Holyoke, Mass.—Beede is in the shoe business at 139 Lincoln Street, Boston.—G. M. Belcher is rodman with the Charles River Basin Commission.—H. R. Calloway is with the New York Edison Company, New York city.—“Nick” Carter is with the Factory Mutual Fire Insurance Company, 31 Milk Street, Boston, Mass.—G. A. Clatur is in the office of the Division Engineer, New York, New Haven & Hartford Railroad Company, South Station, Boston.—“Clif” Cochran’s address is Lock Box 36, Franklin, N.H. He is with the International Paper Company.—Fred Cole has left the United States River and Harbor Commission, and has gone to Northern Vermont to engage in the lumber business for the winter.—G. S. Coleman’s address is 12 Bridge Street, East Cambridge.—R. W. Davis is with the Allis-Chalmers Company, Cincinnati, Ohio.—Edge is a chemist with the Readville Color Works, Readville, Mass.—“Happy” Ellis is a fire insurance underwriter at 93 Water Street, Boston.—L. B. Ellis is with the Metropolitan Water Supply Board at Ashburton Place, Boston.—Esen is a leather chemist at 208 Summer Street, Boston, with Marden, Orth & Hastings.—Ray Ferris has left the Massachusetts State Board of Health, and gone to Columbus, Ohio, where he is engineering assistant with the State Board of Health.—Flaherty is transitman with W. S. Johnson, 101 Tremont Street, Boston, engaged in water works construction.—R. W. Parlin is with the same firm as resident engineer.—W. C. Folsom is assistant engineer with the State Board of Health, State House, Boston.—“Pop” Gerrish is with the Eastern Dredging Company, 247 Atlantic Avenue, Boston.—C. E. Goldthwaite is a machinist at Peabody, Mass.—Cohen is with the G. F. Blake Manufacturing Company, East Cambridge, Mass.—A. W. Heath is with the Pierce & Barnes Company, 7 Water Street, Boston.—Heimer has left the Enterprise Mining Company, and is now with the Socorro Mines, Mogollon, N.M.—Heilman is with the Peerless Auto Company, Cleveland, Ohio.—Iasigi is at 55 Duane Street, New York city, as cable inspector with the New York Edison Company.—Kydd is assistant chemist, Washington Mills Laboratory, American Woollen Company, Lawrence, Mass.—Lambirth is instructor in wood-work at the Brockton High School,

Brockton, Mass.—Lees is with the National Metal Fabric Company, Plainville, Conn.—“Doc” Leslie is with the United Shoe Machinery Company, Beverly, Mass.—Lyford is a sugar analyst at the plantation of the J. B. Laws Company, Cinclare, Baton Rouge Parish, La.—F. W. Lyle and R. E. Manning are with the General Electric Company, Lynn, Mass.—W. H. Mason is assistant manager of Marcus Mason & Co., dealers in plantation machinery, 359 Produce Exchange, New York.—D. H. Maxwell is assistant manager of “Maxwell’s Talisman,” 1403 Fisher Building, Chicago, Ill.—E. H. Newhall is with the General Electric Company, Schenectady, N.Y.—H. G. Nicholas is with the Great Western Sugar Company, Brush, Col.—“Ed” Orchard is a vocal teacher at 3879 Delmar Avenue, St. Louis, Mo.—G. H. Pierce is with the Metropolitan Elevated Railway Company, 139 Adams Street, Chicago, Ill.—E. A. Plumer is with D. C. & W. B. Jackson, engineers, 84 State Street, Boston, Mass.—W. C. Taylor is with the Corning Glass Company, Corning, N.Y.—H. E. Allen is an apprentice with the Westinghouse Electric Manufacturing Company, Wilkesbarre, Pa.—M. E. Allen is at the law school of the University of Michigan, Ann Arbor, Mich.—“Bob” Angell is with the Fargo Plumbing & Heating Company, Fargo, N.D.—R. B. Anthony is with the sales department of the Bristol Company, Waterbury, Conn.—W. E. Booth and E. E. Kilburn are with the Industrial Instrument Company, Waterbury, Conn.—Boush is farming with the Newport Pecan Company, Newport, Fla.—J. C. Brooks is with the Jones & Laughlin Steel Company, South Side Works, Pittsburg, Pa.—W. E. Caldwell is with the W. E. Caldwell Company, Louisville, Ky.—Hardy Cross is a draughtsman with the bridge department, Missouri Pacific Railway, St. Louis, Mo.—Allston Dana is instructor in civil engineering at the University of Montana, Missoula, Mont.—Denny is in the Leven shipyard, Dunbarton, Scotland.—G. M. Dexter is a civil engineer with Hazen & Whipple, 103 Park Avenue, New York city.—C. N. Draper is junior chemist with the United States Geological Survey, 40th and Butler Streets, Pittsburg, Pa.—J. A. Fottler is instructor in electrical engineering at the Rhode Island State College of Agriculture and Mechanic Arts, Kingston, R.I.—Friedman is a heating and ventilating engineer at 18 East 92d Street, New York city.—Gianella is a chemical engineer at 271 Ninth Street, Brooklyn, N.Y.—Goodman is with D. C. & W. B. Jackson, 84 State Street, Boston.—W. Griffen is salesman with Griffen & Hoxie, wholesale grocers, Utica, N.Y.—J. E. Hale is with the Amoskeag Manufacturing Company, Manchester, N.H.—J. W. Hale is instructor in electrical engineering at

the Pennsylvania State College, Pennsylvania.—C. E. Hanson is professor of drawing and manual training at Connor's State School of Agriculture, Muskogee, Okla.—Heard is with the Newport News Shipbuilding and Dry Dock Company, Newport News, Va.—Hennen is assistant engineer with Boughton & Lantz, Morgantown, Va.—Bradford Holmes is with Stone & Webster Management Association, 147 Milk Street, Boston.—M. T. Jones is engaged in experimental work with the Meygowitz Manufacturing Company, 31st Street and 1st Avenue, New York city.—S. C. Lyon is secretary of the Massachusetts Correspondence Schools, 194 Boylston Street, Boston.—G. M. J. Mackay is instructor in chemistry at Dalhousie University, Halifax, N.S.—MacNutt is assistant biologist with the Pittsburg Typhoid Fever Commission, 431 6th Avenue, Pittsburg, Pa.—P. W. Norton is an architect with Shepley, Rutan & Coolidge, 122 Ames Building, Boston.—Penny is assistant to the superintendent, concentrating plant, Pennsylvania Steel Company, Lebanon, Pa.—Potter is a civil engineer in the Departamento de Construcciones Civiles Obras Publicas, Havana, Cuba. Martinez is also at Havana as assistant engineer with the sewer and paving department.—F. E. Mott is a chemist with the Bureau of Milk Inspection, City of Boston, 30 Huntington Avenue.—E. Myers is with the Opaque Shade Cloth Company, West Pullman, Ill., as manufacturer of chrome colors.—F. J. Robinson is a draughtsman in Guy Lowell's office, 1128 Tremont Building, Boston.—C. Shapleigh is assistant engineer with the Alabama & Vicksburg Railway Company, Vicksburg, Miss.—Spengler is assistant to the secretary-treasurer of the National Light and Improvement Company, Pierce Building, St. Louis, Mo.—Steele is open-hearth furnaceman with the Homestead Steel Works, Munhall, Pa.—Wiley is in the engineering department of the Triumph Electric Company, Cincinnati, Ohio.—Larned is at the Union Theological Seminary, New York city.—Arthur Skillings is with the Old Colony Trust Company, Ames Building, Boston.—C. A. Vose is engaged in growing cranberries at Marion, Mass.—A. C. Winch is a heating and lighting engineer at Saxonville, Mass.—W. B. Hunter is co-operative educational director, Fitchburg High School, Fitchburg, Mass.—E. F. Cookingham is with the New Hartford Canning Company, New Hartford, N.Y.—D. Cairns is with the executive department, Holtzer-Cabot Electric Company, Boston.

The following '08 men are assistants: A. B. Babcock, H. S. Chandler, C. W. Clark, C. H. Criswell, J. R. Nichols, A. T. Hinckley, and R. W. G. Wint in Chemistry; H. B. Luther and M. T. Whiting in Civil Engineering; S. F. Hatch and R. B. Weiler

in Mechanical Engineering; H. S. Eames, H. C. Faxon, A. H. Tashjian, E. P. Slack, and J. H. Locke in Physics; C. A. Gibbons and L. A. Dickinson in Mining Engineering; L. H. Sutton in Naval Architecture; and A. R. Hunter in Mechanic Arts.

The resident secretary would like the addresses of the following '08 men, letters addressed to them having been returned: William W. Rawlinson, John E. Johnson, Yuen Foo Leong, Morgan L. Bodenstein, Francis C. Goode, Nathaniel L. Coleman.

Those who knew him will regret to learn of the death of Fred Barstow Stevens, Jr., '08, on Aug. 23, 1908, at Malden, Mass., as a result of typhoid fever. He was in the employ of the Hastings Pavement Company, Hastings-on-the-Hudson, N.Y., but intended to return to the Institute this fall. He was well known for his work on the tug-o'-war team, acting as manager of the freshman team and captain of the sophomore team.

Letters.

WASHINGTON, D.C.

There certainly must be something in mental telepathy, for on the very day that I received your letter of gentle reminders I had made up my mind to write you of my "doin's." I have been in Washington since November in the Fuel Testing Division of the [geological] survey, and am delighted with the place and the work. The work consists primarily in the inspection, sampling, and analysis of all fuel used by the government in the District of Columbia. These fuels—about 150,000 tons per year—are purchased on the basis of "ash in dry coal" and "B. T. U.'s per pound as received." So you see the work is quite extensive. In addition to the above it is the duty of the inspectors to watch each plant—there are over fifty buildings and institutions which come under our immediate supervision—with a view of improving boiler-room economy as regards kind of coal used, method of firing, and centralization of heating and lighting plants. Have had a better offer to go elsewhere, but like the work well, and will stay for awhile to see what the future has to offer. . . .

Give my regards to the '08 fellows through the REVIEW and to my many friends at the Institute. . . .

LEO LOEB, 1121 6th, N.W.

STATE COLLEGE, PA., Dec. 7, 1908.

I was pleased to receive advice of an informal reunion of the members of the Class of 1908. As I am here at State College and busily engaged [as instructor in electrical engineering], I shall be unable to attend the reunion, and regret very much that I cannot meet the fellows at this time. Kindly remember me to all. I hope to be able to meet the fellows, or a large number of them at least, next January, when I shall be in Boston. . . . Long live the Class of '08.

JOSEPH W. L. HALE.

2008 CALUMET AVENUE, CHICAGO, ILL., Dec. 1, 1908.

I will not be able to attend the dinner on the 8th, and you see the reason. Am very sorry not to be able to join you. I understand there are several '08 men in Chicago, among them L. B. Hedge (VI.) and George Schobinger. The latter is the only one I have seen so far, as none of them showed up at the Northwestern Alumni Dinner Saturday night last. However, Schobinger and I had a little reunion on our own hook several weeks ago. We are only about five blocks apart by airship down town here.

Quite a number of '07 men turned out to the alumni dinner, and I met men of several different classes. The stench of stale tobacco smoke hung to my clothing for several days, and I was fully reminded of the good old days on Garrison Street.

Well, remember me to the boys if you happen to see any that know me. . . .

DONALD H. MAXWELL.

The following is a clipping from the Gloucester (Mass.) *Times*, Dec. 4, 1908:—

Charles L. Lufkin, a Gloucester boy who graduated from the Institute of Technology, Boston, last June, leaves by steamer from New York for San Juan, Porto Rico, Saturday, where he has secured a fine position on an immense sugar plantation in that country.

Mr. Lufkin's many friends will be pleased to learn of his success. He is a native of this city, graduating from the Gloucester High School, class of 1903, and was regimental adjutant of the cadet regiment of the Lynn English, Lynn Classical, Chelsea, and Gloucester High School battalions.

Committee on Publication

JAMES PHINNEY MUNROE, '82

ARTHUR AMOS NOYES, '86

WALTER BRADLEE SNOW, '82

WALTER HUMPHREYS, '97

ISAAC WHITE LITCHFIELD, '85

ALUMNI ASSOCIATION
OF THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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Vice-Presidents: { ALBERT F. BEMIS, '93 (term expires in 1909).
FRANK E. SHEPARD, '87 (term expires in 1910).

Secretary, WALTER HUMPHREYS, '97 (term expires in 1909).

Executive Committee

THE PRESIDENT, VICE-PRESIDENT, and SECRETARY.

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W. SPENCER HUTCHINSON, '92 (term expires in 1909).

WILLIAM S. JOHNSON, '89 (term expires in 1910).

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Nominating Committee

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ALLYNE L. MERRILL, '85 (term expires in 1909).

ANDREW D. FULLER, '95 (term expires in 1909).

HARRY W. TYLER, '84 (term expires in 1910).

EDWARD H. HUXLEY, '95 (term expires in 1910).

FREDERICK H. HUNTER, '02 (term expires in 1910).

Alumni Committee on the School

JOHN O. DEWOLFE, '90 (term expires in 1909).

HENRY SOUTHER, '87 (term expires in 1910).

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J. ARNOLD ROCKWELL, '96 (term expires in 1910).

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ROBERT H. RICHARDS, '68.

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ALBERT F. BEMIS, '93

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Term expires March, 1910.

Term expires March, 1911.

FREDERICK K. COPELAND

T. COLEMAN DUPONT

JOSEPH P. GRAY

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FREDERICK W. WOOD

Term expires March, 1912.

Term expires March, 1913.

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Term expires March, 1914.

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